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Cover: "Lune menteuse"

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La Relève

John Wootton, MD
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Scientific editor, CJRM

CJRM 2003;8(3):155

In my position within a bilingual organization, I am often drawn to those cross-cultural situations where a word from one language is imported into the other for lack of an appropriate native translation that communicates all the nuances required. Sadly the good words seem to come most often from French into English. English, for its part, provides words of questionable legitimacy such as "le hot-dog" and "le bellboy"!

One such word is "la relève," used in the sense of troops coming to the relief of fatigued comrades. The Public Service Commission of Canada has shamelessly borrowed it intact as the official name, in both languages, of their cross-departmental training programs. It's a good word in that context, given the importance of the public service to a multitude of Canadian programs, but it is also a good word to use in the context of rural medicine. Who will be "la relève"? From whom will relief come?

In this and past issues of the Journal we have published articles from physicians at the beginnings of their careers. These physicians, by the nature of the work they have produced and exposed to peer review, are demonstrating that they have heard "the call of the wild." It is from among these that "la relève" will materialize.

In our last issue we published the winning essay¹ from the Medical Student Rural Essay Contest — "A Funny Thing Happened on the Way to the Delivery Room" — the theme of which could not have been more appropriate to the concerns of the SRPC, where the preservation of rural maternity services holds a special place.

Rural interest clubs are present in most, if not all, medical schools, and RuralMed intends to clone itself to provide a forum specifically to students. The SRPC already provides free membership to students and residents, and CJRM and the SRPC have sponsored a Rural Resident Research contest for the best rural research paper (see Spring issue, [pg 106](#), or go to www.srpc.ca and click on "Awards") — contributions are now in the process of being evaluated .

All these activities are testimony to fact that health care services to rural Canadians will only be sustainable with relief from new graduates. Their contributions are welcome now, and will be even more welcome in the future. CJRM sees itself as one of the ways in which these new colleagues can be included in our rural "family" and convinced that rural medicine has the challenges and excitement that they are looking for. It is part of the solution to the founding challenge of the SRPC: to succeed in making rural medicine into something someone would want to do.

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Reference

1. Dixon A. [A funny thing happened on the way to the delivery room](#). Can J Rural Med 2003;8(2):122-3.



La Relève

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JCRM 2003;8(3) 156

Dans le poste que j'occupe au sein d'un organisme bilingue, les situations transculturelles où un mot d'une langue est importé dans l'autre faute d'une traduction appropriée qui fait passer toutes les nuances requises attirent souvent mon attention. Les bons mots semblent malheureusement passer le plus souvent du français vers l'anglais. L'anglais, quant à lui, offre des mots d'une légitimité douteuse comme «le hot-dog» et «le bellboy»!

Un de ces mots, c'est «la relève», qu'on utilise au sens de troupes qui viennent relever des compagnons d'armes fatigués. La Commission de la fonction publique du Canada n'a pas eu honte de l'emprunter intégralement comme titre officiel, dans les deux langues, de ses programmes de formation interministérielle. Dans ce contexte, c'est un bon mot, étant donné l'importance de la fonction publique pour une multitude de programmes canadiens. C'est aussi un bon mot à utiliser dans le contexte de la médecine rurale. Qui assurera «la relève»*? De qui viendra la relève?

Dans ce numéro du Journal et des numéros précédents, nous avons publié des articles de médecins en début de carrière. À cause de la nature même des travaux qu'ils ont produits et soumis à l'examen critique de pairs, ces médecins démontrent qu'ils ont entendu l'appel. C'est du groupe de ces médecins que proviendra la relève.

Dans notre dernier numéro, nous avons publié le texte gagnant du concours de dissertation sur la médecine rurale des étudiants en médecine — «A Funny Thing Happened on the Way to the Delivery Room» — dont le thème n'aurait pu être plus pertinent aux préoccupations de la SMRC, qui s'intéresse particulièrement à la préservation des services de maternité en milieu rural.

La plupart, sinon la totalité, des facultés de médecine ont un club d'intérêt rural et RuralMed a l'intention de se cloner afin de créer une tribune réservée spécifiquement aux étudiants. La SMRC offre déjà l'adhésion gratuite aux étudiants et aux résidents, et le JCMR et la SMRC ont commandité un concours de recherche auprès des résidents en médecine rurale portant sur la meilleure communication de recherche en médecine rurale (voir le numéro de printemps, p. 106, ou rendez-vous à www.srpc.ca et cliquez sur «Awards») — on est en train d'évaluer les contributions.

Toutes ces activités témoignent du fait que la relève assurée par les nouveaux diplômés constitue le seul moyen de garantir la viabilité des services de santé offerts aux populations rurales du Canada. Leurs contributions sont les bienvenues maintenant, et elles le seront encore plus à l'avenir. Le JCMR se considère comme un des moyens d'inclure ces nouveaux collègues dans notre «famille» rurale et est convaincu que la médecine rurale peut leur offrir les défis et l'excitation qu'ils recherchent. Il s'agit là d'une partie de la solution au défi à l'origine de la fondation de la SMRC : réussir à faire de la médecine rurale une discipline attrayante.

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*Note du traducteur : l'expression «la relève» figure en français dans le texte original.

Référence

1. Dixon A. [A funny thing happened on the way to the delivery room](#). Can J Rural Med 2003;8(2):122-3.

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President's message: Rural and Remote in Kelowna 2003

Jill Konkin, MD
Thunder Bay, Ont.

CJRM 2003;8(3):157-8

Another successful Annual Rural and Remote Conference has been staged, and we are now into the "new year" for the Society of Rural Physicians of Canada (SRPC). I thank the annual conference committee members, under the capable leadership of Dr. Alan Ruddiman, for their hard work and dedication.

One of the keynote speakers, Dr. Stuart Iglesias of Gibsons, BC, raised thought-provoking issues on the future of rural health care, in particular, the types of communities and medical care that will support the hospitals in our communities. He argued that communities without the capability to care for patients with high-acuity problems would lose in-patient hospital capabilities, if they haven't already. In his excellent presentation, Dr. Iglesias argued that rural hospitals of the future must have vibrant general surgical programs supported by on-site diagnostic imaging, including a CT scan as a central core. The population necessary to support rural hospitals of the future will be 15 000+. Whether or not you agree with the theses of this presentation, it is important that rural physicians view the changes in health care and, in particular, medical care, with a constructively critical eye and that they become more proactive. One of our important tasks is to promote equitable access to health services for rural communities. We must be creative and forward thinking in our pursuit of this goal.

Council meeting

Preceding the conference, Council members reviewed the key drivers of the SRPC and what structure would support the priorities identified by the Society. The following will be our guideposts for the next 3 to 5 years.

Vision

To serve as the national voice for Canada's rural physicians.

Mission

1. To promote equitable access to health services for rural communities.
2. To provide leadership and promote sustainable working conditions for rural physicians.

Key areas

1. Communication and linkages among rural physicians and other groups
2. Policy development and advocacy for rural health
3. Rural medical education
4. Research into rural health issues
5. Professional community/home for rural physicians.

Two major initiatives

During our deliberations on the structure we need in place to support our organization, we initiated a process of change that will culminate in 2 major initiatives.

First, we will be proposing a reorganization of the Executive and Council, which will come to the 2004 annual meeting, in Quebec City.

Second, the Society will be recruiting an Executive Director, to be in place by the Fall of 2003. It is the Council's intent that we improve the communication and interaction among the various groups and committees (including Executive and Council) within the SRPC and that we provide more support for the important work that they do.

Other business

While some introspection is important, do not fear that the SRPC has neglected the important issues on our plate at this time. We continue to work collaboratively with the College of Family Physicians of Canada (CFPC) and the Canadian Anesthesiologists' Society (CAS) to provide a professional home for GP Anesthetists. There are major initiatives continuing in the field of GP Surgery. In spite of the excellent work of the SRPC, both on its own and in collaboration with the Society of Obstetricians and Gynaecologists of Canada (SOGC) and the CFPC, rural obstetrical programs continue to be under seige. There have been recent closures in the north of Vancouver Island, in communities in Ontario and Alberta. We are no longer seeing the demise of programs that are considered low volume. One of the recent closures was in a hospital with approximately 300 births/year.

For the foreseeable future there is much work to be done to promote equitable access to health services for Canada's rural communities. The SRPC will continue to collaborate with other organizations where possible and work on our own where necessary to further this agenda.

As always, there is room for more member involvement. Keep an eye on our Web site, www.srpc.ca. Read the CJRM. Go to regional SRPC CME presentations. Contact your regional SRPC representatives: Atlantic Region—Bernard Buffet, Neil's Harbour, NS, or David Howe, Parrsboro, NS; Quebec—Maurice Lamarche, Shawville, or Martin Benfrey, Fort Coulonge; Ontario—Peter Hutten-Czapski, Haileybury, or Karl Stobbe, Beamsville; Central (Prairie Provinces)—David O'Neil, Trochu, Alta., or Dale Dewar, Wynard, Sask.; Northwest—Alan Ruddiman, Oliver, BC, or Sandy Alexander, Nunavut.

And, of course, mark your calendars for next year's RnR.

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Message de la présidente : La médecine en région rurale et éloignée : Congrès de 2003 à Kelowna

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JCRM 2003;8(3) :158-9

Une autre édition fructueuse du Congrès annuel de la médecine en région rurale et éloignée a eu lieu et nous entamons maintenant la «nouvelle année» de la Société de la médecine rurale du Canada (SMRC). Je remercie les membres du Comité organisateur du Congrès, dirigé avec compétence par le Dr Ian Ruddiman, de leurs efforts et de leur dévouement.

Un des conférenciers vedettes, le Dr Stuart Iglesias de Gibsons (C.-B.), a soulevé des questions qui font réfléchir sur l'avenir des soins de santé en milieu rural et plus particulièrement sur les types de communautés et de soins médicaux qui appuieront les hôpitaux de nos localités. Il a soutenu que les communautés incapables de traiter les patients atteints de problèmes très aigus perdraient leurs services d'hospitalisation, si ce n'est déjà fait. Dans son excellent exposé, le Dr Iglesias a soutenu que les hôpitaux ruraux de demain doivent avoir un programme de chirurgie générale dynamique appuyé par des services locaux d'imagerie diagnostique dont le tomodensitomètre sera l'élément central. Il faudra une population de plus de 15 000 habitants pour appuyer les hôpitaux ruraux de demain. Que l'on accepte ou non les théories sur lesquelles repose cet exposé, il importe que les médecins ruraux considèrent l'évolution des soins de santé, et plus particulièrement des soins médicaux, d'un œil critique constructif et qu'ils deviennent plus proactifs. Une de nos tâches importantes consiste à promouvoir l'accès équitable aux services de santé pour les communautés rurales. Les efforts que nous déployons pour atteindre ce but doivent reposer sur la créativité et sur la réflexion prospective.

Réunion du Conseil

Avant la conférence, les membres du Conseil se sont penchés sur les grandes forces motrices de la SMRC et sur la structure qui appuierait les priorités établie par la Société. Les éléments qui suivent seront nos jalons des trois à cinq prochaines années.

Vision

Faire fonction de porte-parole national des médecins ruraux du Canada.

Mission

1. Promouvoir l'accès équitable aux services de santé pour les communautés rurales.
2. Jouer un rôle de chef de file et promouvoir des conditions de travail viables pour les médecins ruraux.

Domaines clés

1. Communication et établissement de liens entre les médecins ruraux et d'autres groupes.
2. Élaboration de politiques et représentation en faveur de la santé en milieu rural.
3. Formation en médecine rurale.

4. Recherche sur des questions de santé en milieu rural.
5. Point de rencontre et communauté professionnelle des médecins ruraux.

Deux grandes initiatives

Au cours de nos délibérations sur la structure dont nous avons besoin pour appuyer notre organisation, nous avons lancé un exercice de changement qui débouchera sur deux grandes initiatives.

Premièrement, nous proposerons une restructuration de la direction et du Conseil, que nous soumettrons à l'Assemblée annuelle de 2004 à Québec.

Deuxièmement, la Société recrutera un directeur général qui devrait être en poste à l'automne de 2003. Le Conseil souhaite nous voir améliorer la communication et les échanges entre les divers groupes et comités (y compris la direction et le Conseil) de la SMRC et appuyer davantage son travail important.

Autres questions

Même si l'introspection est importante jusqu'à un certain point, il ne faut pas croire que la SMRC a négligé les enjeux importants à l'ordre du jour. Nous continuons de collaborer avec le Collège des médecins de famille du Canada (CMFC) et la Société canadienne des anesthésiologistes afin d'offrir un foyer professionnel aux anesthésiologistes omnipraticiens. D'importantes initiatives se poursuivent dans le domaine de la chirurgie générale. En dépit de l'excellent travail effectué par la SMRC, à la fois seule et en collaboration avec la Société des obstétriciens et gynécologues du Canada et le CMFC, les programmes d'obstétrique en milieu rural demeurent assiégés. Des services ont fermé récemment leurs portes dans le nord de l'Île de Vancouver, ainsi que dans des localités de l'Ontario et de l'Alberta. Nous ne voyons plus disparaître que des programmes jugés à faible volume. On a fermé récemment un hôpital qui effectuait environ 300 accouchements par année.

Dans l'avenir prévisible, il y aura beaucoup de travail à faire pour promouvoir l'accès équitable aux services de santé pour les communautés rurales du Canada. La SMRC continuera de collaborer avec d'autres organismes, lorsque c'est possible, et de travailler seule de son côté lorsque c'est nécessaire, pour faire avancer ce programme.

Comme toujours, il y a de la place pour d'autres membres qui veulent participer. Surveillez notre site web, www.srpc.ca. Lisez le JCMR. Participez aux exposés d'EMC de la SMRC. Communiquez avec le représentant de la SMRC dans votre région : Maritimes — Bernard Buffet, Neil's Harbour (N.-É.), ou David Howe, Parrsboro (N.-É.); Québec — Maurice Lamarche, Shawville, ou Martin Benfrey, Fort Coulonge; Ontario — Peter Hutten-Czapski, Haileybury, ou Karl Stobbe, Beamsville; Centre (Prairies) — David O'Neil, Trochu (Alb.), ou Dale Dewar, Wynard (Sask.); Nord-Ouest — Alan Ruddiman, Oliver (C.-B.), ou Sandy Alexander, Nunavut.

N'oubliez pas, bien entendu, d'inscrire le congrès de l'an prochain à votre agenda.

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Assessing the need for and interest in a scholarship program in children's mental health for rural family physicians

Margaret M. Steele, MD, FRCPC
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Neal Stretch, MD, CCFP
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[\[résumé \]](#)

Objective: To determine rural and underserved family physicians' access to child and adolescent mental health services and to evaluate interest in engaging in formal continuing medical education in child psychiatry.

Design: A cross-sectional cohort of family physicians in rural and underserved areas was surveyed with a mailed questionnaire. Initial non-responders were mailed a second questionnaire.

Setting: Southwestern Ontario

Participants: A total of 505 family physicians. Response rate was 47.9%; 242/505 surveys were completed.

Main outcome measures: Physicians' self-reported access to child and adolescent mental health services and their interest in obtaining additional training in child psychiatry.

Results: 55.4% of respondents practised in a rural location. Most (80%) family physicians felt there was a need for child psychiatry consultation visits to their community. In the majority of practices (92.5%), less than 10% of the practice involved child psychiatry. Physicians had minimal training in child psychiatry, and more than 80% did not feel confident in their knowledge and skills in managing children's mental health problems. 84.3% felt they needed more training, especially in behaviour disorders, attention-deficit hyperactivity disorder and problem adolescents. The top 3 methods respondents believed would be most beneficial for additional training were continuing medical education in the community, small group teaching by a child psychiatrist and self-instructional packages.

Conclusion: Rural and underserved family physicians would like more access to child and adolescent mental health services and more training in child psychiatry. Innovative training for family physicians in child psychiatry needs to be developed and evaluated.

Objectif : Déterminer l'accessibilité, pour les médecins de famille des régions rurales et mal desservies, des services de santé mentale destinés aux enfants et aux adolescents et évaluer dans quelle mesure une formation continue structurée en psychiatrie infantile les intéresse.

Conception : On a envoyé un questionnaire postal à une cohorte transversale de médecins de famille de régions rurales et mal desservies, et un deuxième questionnaire à ceux qui n'ont pas répondu au premier.

Contexte : Sud-ouest de l'Ontario

Participants : Sur un total de 505 médecins de famille, le taux de réponse s'est établi à 47,9 % et 242 questionnaires sur 505 ont été remplis.

Principales mesures de résultats : Accessibilité autodéclarée par les médecins des services de santé mentale pour enfants et adolescents et mesure dans laquelle une formation supplémentaire en psychiatrie infantile les intéresse.

Résultats : Parmi les répondants, 55,4 % pratiquaient en milieu rural. La plupart (80 %) des médecins de famille étaient d'avis que leur communauté avait besoin de visites d'un consultant en psychiatrie infantile. La psychiatrie infantile représentait moins de 10 % de la charge de travail de la majorité des pratiques (92,5 %). Les médecins avaient reçu une formation minimale en psychiatrie infantile et plus de 80 % n'avaient pas confiance dans leurs connaissances et leurs compétences pour prendre en charge des problèmes de santé mentale chez des enfants. Parmi les répondants, 84,3 % croyaient avoir besoin de plus de formation, surtout sur les troubles du comportement, sur le trouble d'hyperactivité avec déficit de l'attention et sur les problèmes des adolescents. Les trois principales méthodes que les répondants croyaient les plus bénéfiques pour suivre une formation supplémentaire étaient l'éducation médicale continue dans la communauté, la formation en petits groupes donnée par un spécialiste de la psychiatrie infantile et les troussees d'autoformation.

Conclusion : Les médecins de famille des régions rurales et mal desservies aimeraient avoir davantage accès aux services de santé mentale pour enfants et adolescents et avoir plus de formation en psychiatrie infantile. Il faut mettre au point et évaluer une formation innovatrice en psychiatrie infantile à l'intention des médecins de famille.

Introduction

There are indications that emotional and behavioural problems in children and adolescents have become more prevalent.¹ With child psychiatrists concentrated in large urban centres² the gap between psychiatric need and service provision will be magnified in rural and underserved areas of Ontario. Family physicians (FPs) could play a pivotal role in the recognition and management of child and adolescent mental health problems. The Ontario Child Health Study found that 60% of 4- to 16-year-old children identified in the survey as having a disorder had been seen by an FP in the 6 months prior to the survey.³ In addition to case finding, FPs are in a unique position to detect early parent-child problems and the impact of parental psychiatric disorders on offspring.⁴ Finally, when distressed youngsters seek advice or treatment for emotional and behavioural disorders, the majority report that they are most likely to consult an FP.⁵

Studies have shown that physicians believe their adolescent medicine training has not been ideal in psychosocial aspects.⁶ Steele and Dickie,⁷ in a survey of child and adolescent training in Canadian family medicine residency programs, found that there was minimal teaching of child psychiatry. Since competency is most strongly related to residency and not to post-residency experience,⁸ it is logical to assume that a significant number of FPs do not feel adequately equipped to detect and manage common child psychiatry problems. A working group from the departments of family medicine and psychiatry at the University of Western Ontario (UWO) and the University of Ottawa, and the Division of Child Psychiatry at UWO had several meetings, from which a focus group, representing rural FPs and including an educator from Hanover, Ont., was formed on Sept. 21, 1999. A questionnaire was developed to survey FPs practising in rural or underserved areas of Southwestern Ontario.

The goal of the survey was to determine access to child and adolescent psychiatry and evaluate physician interest in continuing medical education (CME) in child psychiatry. There were 3 study hypotheses: 1) FPs practising in rural and underserved areas would identify limited access to psychiatric services for children and adolescents; 2) most FPs practising in these areas would lack confidence in knowledge and skills in management of child and adolescent mental health problems; and 3) few of these FPs would be interested in training opportunities to further their expertise in the detection and management of child and adolescent mental health problems and psychiatric disorders.

Method

A cross-sectional cohort of FPs practising in rural and underserved areas of Southwestern Ontario were studied. "Rural" practice is defined as an area with a population of less than 10 000, and "underserved" is defined as an area in which there is 1 doctor to 1380 people. A list of FPs who were currently practising in rural and underserved communities of Southwestern Ontario was compiled using the FP Section of the 1999 Canadian Medical Directory. The survey was distributed in 2000. The 2 largest cities, London and Windsor, were not surveyed. A questionnaire, developed by some of

the investigators (M.M.S., S.F., N.S. and J.R.), was mailed to FPs on the abovementioned list with a stamped, return-address envelope and an expected turnaround time of 6 weeks (see [Appendix 1](#)). At 6 weeks a second identical questionnaire was sent to the physicians who had not responded. Questionnaire data were analysed using SPSS version 9.0.

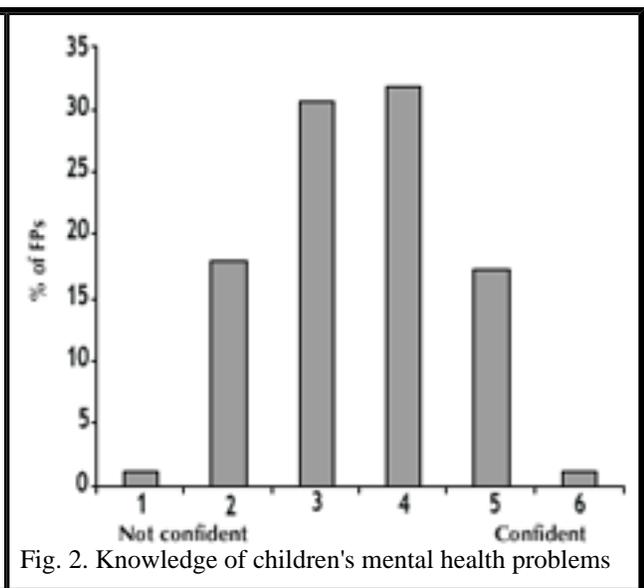
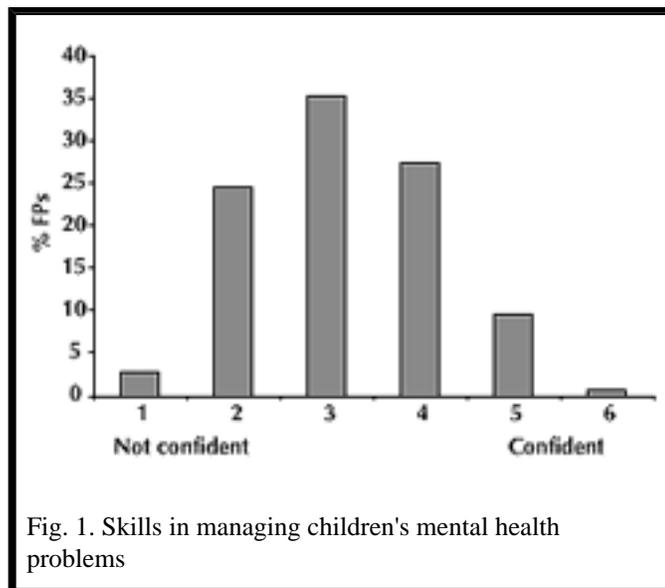
Results

Response rate and demographic data

A total of 242 completed questionnaires were returned, giving a response rate of 47.9% (242/505); 73.1% of respondents were male. This compares closely with the distribution of FPs in Ontario (male 71%, female 29%). 55.4% of respondents were in rural practice, with the remainder being in underserved areas. At the time of the survey, almost 51% of the respondents were between the ages of 36 and 50, and 46% had been in practice for more than 20 years, with the majority (87.4%) being in full-time practice. More than 50% of the FPs were certified with the College of Family Physicians of Canada (CFPC) ([Table 1](#)). Comparison of responders and non-responders showed statistically significant differences for gender and number of years in practice: more female FPs and physicians who had been in practice for 10 years or less responded ([Table 2](#)). Therefore, the sample in this study cannot be generalized to the whole population of rural FPs. For 43%, less than 10% of their practice involved psychiatry services, 44% said 10% to 20% did and 13% indicated more than 20% of their practices involved psychiatric services. 82.6% of respondents had no training and 17.4% had some training in child psychiatry. Respondents did not have an accurate concept of a children's mental health centre and they did not know when child psychiatrists actually visited their areas. Almost 80% felt there was a need for child psychiatry consultation visits to their community, and 65% of the respondents felt there is a need for an expert FP to do child psychiatry visits.

Respondents' confidence in their knowledge and skills in children's mental health

Confidence was defined as a score of 5 or more on a 7-point Likert scale. 10.3% of the respondents scored 5 or more with respect to their confidence in their skills in managing children's mental health problems (Fig. 1). Slightly more FPs (18.1%) felt confident in their knowledge of children's mental health problems (Fig. 2). No statistical difference was found between male and female FPs and length of time in practice. Subgroup analysis indicated that confidence with knowledge and skills in managing children's mental health problems were not significantly different between male and female respondents and the number of years they had been in practice.



Need for mental health training

The majority (84.3%) of respondents felt they needed more training in child and adolescent psychiatry. For those who answered No, 75.7% gave no reason, 10.8% felt they had no time or were too busy, 2.7% were retired, 2.7% said they were too old, 5.4% did not see children and 2.7% were reducing their hours of practice. Of the respondents who wanted more training, the top 3 requests for additional training were CME in the community, small group teaching by a child

psychiatrist and self-instructional packages. Most of the physicians (83.9%) were not interested in extra funded training in child psychiatry. Analysis between male and female FPs and their interest in receiving training was not statistically significant. However, subgroup analysis of opportunities to have funded training in child psychiatry indicated that more male physicians who had been in practice for less than 10 years were, or possibly were, more interested in receiving funded training ($p < 0.035$). There was no statistical difference for female physicians.

The FPs were asked to rank 11 topics in child psychiatry in order of importance. Behaviour disorders and attention-deficit hyperactivity disorder (ADHD) were ranked the highest (Table 3).

Respondents were asked to compare multiple learning needs in other specialty areas. On a 10-point Likert scale, more than half of the responders rated their needs as 7 or greater for child and adolescent psychiatry (Fig. 3).

Discussion

This paper had 3 hypotheses: 1) FPs practising in rural and underserved areas would identify limited access to psychiatric services for children and adolescents; 2) most FPs practising in these areas would lack confidence in knowledge and skills in management of child and adolescent mental health problems; and 3) few of these FPs would be interested in training opportunities to further their expertise in the detection and management of child and adolescent mental health problems and psychiatric disorders.

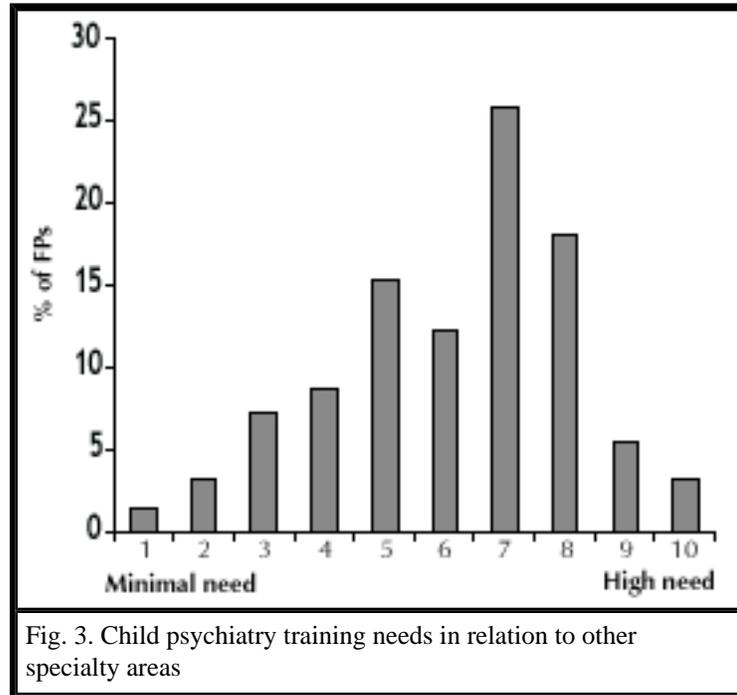


Fig. 3. Child psychiatry training needs in relation to other specialty areas

Eighty-seven percent of respondents spend less than 20% of their practice in the direct management of psychiatric problems in general, and 92% spend less than 10% of their time with child or adolescent mental health problems; 82.6% had no training at all in child psychiatry. Ninety percent have little confidence in their skills with respect to management of child psychiatric disorders, and 85% identified a need for more training in this area. It is important to note that the responders were more likely to be female and have been in practice for 10 years or less. One might speculate that the non-responders are not interested in children's mental health or, being more experienced, they do not feel the need for training.

With respect to its relative importance in their practice, 52.4% rated the need for training in child and adolescent mental health at 7 to 10 on a Likert scale of 10. This may represent feelings of inadequacy (i.e., the disproportionate fear of treating something for which one feels poorly trained). It may reflect the often stated assumption that the unmet needs in child and adolescent mental health are many, but rural physicians, given their time constraints, are unprepared to move into this area of medicine without adequate training or resources. It may reflect that psychiatric problems tend to present with increasing acuity and severity to the rural physician's office or emergency department¹⁰ and this results in a negative perception of child psychiatry practice.

There is a sense that rural physicians work in isolation. This survey identifies 80% who want regular visits from a child psychiatrist and 65% who want one of their physicians to be a local expert. Rural and remote physicians have reported that they have largely given up hope of help from psychiatrists. A series of focus groups held with FPs in 7 communities across Ontario consistently identified high levels of dissatisfaction with the accessibility of timely psychiatric consultation and treatment, poor communication on the part of mental health services, and cumbersome intake procedures of many mental health services. FPs frequently felt their judgement was undervalued by psychiatrists. FPs may have a different approach to diagnosis and treatment than the mental health care delivery service due to the realities of family medicine, the undifferentiated nature of presenting problems, the long-term physician-patient relationship, and the frequent overlap of physical and mental health problems. In the child and adolescent age group, FPs described common areas of concern such as behaviour problems, eating disorders, drug abuse and unplanned pregnancies.¹¹ Rural physicians are faced with significant child and adolescent mental health issues but perceive themselves to be poorly trained and unsupported.

And how do they see solutions? Restructuring has led to a shift in resources from hospitals to community services, with increased expectations for the levels of care to be delivered by FPs. Establishing and strengthening partnerships between

primary care and specialty providers is important to enhance the role of FPs as primary providers of mental health care and to increase their access to advice and treatment.¹² At Memorial University of Newfoundland, which has no formal mental health training with psychiatrists, a survey was sent to the graduates of the family practice residency program between 1990 and 1995. Respondents felt confident addressing most of the mental health needs of their patients. They did express a need for additional training in child and adolescent mental health — in particular, ADHD, learning disorders, adolescent suicide and child sexual abuse.¹³

In our study, the top 5 topics identified as problem areas were behaviour disorders, ADHD, problem adolescents, interviewing skills and mood disorders. Eighty-four percent of respondents were not interested in funded training programs in child and adolescent psychiatry. However, 8% were interested, which may be an adequate number if we compare, for example, training issues in rural obstetrics. With few doctors having special skills in cesarean sections, working within a supportive group of colleagues can have a significant impact in the whole area of rural obstetrics. Similarly, a small group of specially trained family doctors could have a significant impact on management of child and adolescent mental health in their region. This might easily be accomplished through the acquiring of skills in relatively few areas — ADHD, mood disorders and advice or support around behaviour disorders, problem adolescents and interviewing skills. How this training would take place presents special problems in rural communities. Specific, practical, and time-efficient training techniques need to be developed in order to have an enduring effect on the primary care physician's ability to recognize and manage psychiatric disorders. Training programs could be developed as highly structured standardized modules. These training modules should be based on problem-based learning techniques for teaching psychiatric differential diagnosis and treatment planning. Each module should contain standardized videotapes demonstrating interviewing techniques and psychiatric differential diagnosis and have adequate competency-based evaluation instruments for trainee assessment. Well defined learning objectives and outcome measures are essential for trainees and supervisors to assess the impact of the training strategies and document their efficacy.¹⁴

Few rural physicians are prepared to leave their usually underserved regions to pursue further training. Their training method of choice is to bring the experts to their own community for short stays. The Society of Rural Physicians of Canada initiated a program of bringing small group learning facilitated by experts into rural areas (Dr. Keith MacLellan, Shawville, Que.: personal communication, 2001). The CFPC is encouraging practice-based small-group learning as an excellent method for local CME (Dr. Keith MacLellan, Shawville, Que.: personal communication, 2001).

FPs cannot work in isolation in the area of children's mental health. It will be important for FPs to become part of multidisciplinary programs in their community. They could consult with the mental health professionals who would be providing assessment, intervention and case management for children, adolescents and their families. The establishment of mental health teams in collaboration with FPs would provide a more effective delivery care system for children with mental health needs and their families.

There are a number of training opportunities that could be developed to aid the rural and underserved FPs in the area of children's mental health. One possibility is to pair an FP with a child psychiatrist to plan CME in the rural community. The teaching could be a combination of didactic and direct case-based learning. The second option would be small group teaching of interested FPs by a child psychiatrist and an FP with an interest in this area. Self-instructional packages could be developed and provided at the training sessions. The third possibility is to develop a scholarship program for the FPs interested in pursuing more intensive training.

A potential limitation of this study was the less than 50% response rate and the over-representation of females and physicians with fewer years in practice in the sample. However, subgroup analysis showed that there was no significant difference between male and female respondents and the years they had been in practice for confidence with knowledge and skills in managing children's mental health problems. This implies that these results may be interpreted as valid for the whole population.

Conclusion

FPs in rural and underserved areas of Southwestern Ontario feel they need more access to child and adolescent mental health services. Most of the survey respondents have minimal training in child psychiatry and lack confidence in their knowledge and skills in managing children and adolescent mental health services. Despite small numbers of child psychiatry problems in their practices, the majority of FPs want more training. Pairing FPs with a child psychiatrist, in a small teaching group, and a scholarship program are all options for helping FPs gain the training they need.

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Table 1. Demographics of family physicians who responded to survey (n = 242)	
Characteristic	No. (and %)
Gender	
Male	177 (73.1)
Female	65 (26.9)
Age, yr	
25–30	7 (2.9)
31–35	23 (9.5)
36–40	30 (12.4)
41–45	43 (17.8)
46–50	50 (20.7)
51–55	36 (14.9)
56–60	24 (10.0)
61–65	12 (5.0)
66 and over	16 (6.6)
No. of years in practice	
0–5	19 (7.9)
6–10	31 (12.9)
11–15	43 (17.8)
16–20	37 (15.4)
21–25	45 (18.7)
26–30	28 (11.6)
31–35	17 (7.1)
> 35	21 (8.7)
Practice status	
Full time	209 (87.4)
Part time	19 (7.9)
Retired	6 (2.5)
Semi-retired	5 (2.1)
Qualifications	
CCFP	133 (54.9)
Non-CCFP	109 (45.0)
Training	
University of Western Ontario	90 (37.2)
University of Toronto	46 (19.0)
University of Ottawa	11 (4.5)
Queen's University	20 (8.3)
McMaster University	18 (7.4)
Other Canadian universities	25 (10.4)
Non-Canadian universities	32 (13.2)

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Table 2. Differences between responders and non-responders			
	Responded, no.* (and %)	Did not respond, no.* (and %)	<i>p</i> value
Gender			
Male	177 (45.4)	213 (54.6)	0.001
Female	65 (63.1)	38 (36.9)	
No. of years in practice			
0–10	50 (64.1)	28 (35.9)	0.001
11–20	79 (52.3)	72 (47.7)	
21–30	74 (49.7)	74 (50.3)	
31 and over	39 (35.5)	71 (64.5)	

* Differences in "n" size are because of missing data.

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Table 3. Topics in child psychiatry (in descending order of importance), as ranked by survey respondents

1. Behaviour disorders
2. Attention-deficit hyperactivity disorder
3. Problem adolescents
4. Interviewing skills
5. Mood disorders
6. Treatment interventions
7. Eating disorders
8. Anxiety disorders
9. Adolescent suicide
10. Developmental disorders
11. Community mobilization

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Should low-molecular-weight heparin be used in the treatment of acute coronary syndromes in rural hospitals?

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[\[résumé \]](#)

Objective: To evaluate the use of low-molecular-weight heparin (LMWH) for acute coronary syndromes (ACS) in a rural setting.

Methods: A review of LMWH effectiveness and a simplified costing exercise that focused on potential differences between rural and urban settings for delivering LMWH versus unfractionated heparin (UFH).

Results: LMWH is as clinically effective as UFH for the treatment of ACS in a rural setting. The estimated drug delivery cost of the dalteparin (\$65 per admission) was less than that for UFH (\$110). The high cost of after-hours activated partial thromboplastin time monitoring in a rural setting (\$86 per admission) more than offset the increased cost of LMWH compared to UFH.

Conclusions: LMWH is the heparin of choice for the treatment of ACS in a rural setting. The method of using an abbreviated effectiveness and costing exercise may be a practical approach for evaluating other health interventions in a rural setting.

Objectif : Évaluer l'utilisation de l'héparine de faible poids moléculaire (HFPM) dans le traitement des syndromes coronariens aigus (SCA) en milieu rural.

Méthodes : Étude d'efficacité de l'HFPM et exercice simplifié d'établissement des coûts visant à rechercher les différences éventuelles entre les milieux rural et urbain dans l'administration de l'HFPM par rapport à l'administration de l'héparine non fractionnée (HNF).

Résultats : Sur le plan clinique, l'HFPM est aussi efficace que l'HNF dans le traitement des SCA en milieu rural. Le coût estimé d'administration de la dalteparine (65 \$ par admission) est inférieur à celui de l'HNF (110 \$). Le coût élevé de la surveillance, après les heures normales, du temps de céphaline activée en milieu rural (86 \$ par admission) compense nettement le coût plus élevé de l'HFPM par rapport à l'HNF.

Conclusions : L'HFPM est l'héparine de choix dans le traitement des SCA en milieu rural. La méthode abrégée d'étude d'efficacité et d'établissement des coûts pourrait être une démarche praticable pour l'évaluation d'autres interventions de santé en milieu rural.

Introduction

Acute coronary syndromes (ACS), which comprise unstable angina, non-Q wave myocardial infarction and ST-

segment elevation myocardial infarction, account for a large percentage of the burden for health care. In Ontario, cardiovascular disease is the second leading cause of hospitalization.¹ Angina pectoris and chest pain of non-cardiac origin account for greater than one-third of all cardiac hospital admissions.² The risk of progression to myocardial infarction or death from non-ST elevated ACS (unstable angina and non-Q wave infarction — referred to as ACS in this study) may be up to 20% in the first 30 days of follow-up.³ Many patients will undergo further in-hospital investigation and treatment, including angiography, angioplasty and coronary artery bypass surgery.

Standard therapy with unfractionated heparin (UFH) and acetylsalicylic acid reduces mortality from ACS.⁴ Low-molecular-weight heparin (LMWH) is an attractive alternative because it has similar antithrombotic properties compared to intravenous UFH but is easier to administer. LMWH is completely absorbed with less protein binding and it can be given subcutaneously in 1 or 2 standard daily doses without monitoring. More recently, the management of high-risk ACS patients may include the use of glycoprotein IIb/IIIa inhibitors.⁵

The use of LMWH is gaining acceptance in the treatment of ACS in urban hospitals. Assessments in this setting suggest that LMWH is as effective as UFH with potential cost savings due to a reduction in the number of invasive procedures for patients treated with LMWH.^{6,7}

We hypothesize that in rural hospitals LMWH may be a more appropriate therapy than UFH for the treatment of ACS. For some rural hospitals, monitoring of UFH anticoagulation is likely more unwieldy and costly due to the lack of on-site laboratory facilities. In these settings, there are additional courier costs for transporting blood samples to off-site laboratories, and/or overtime fees for calling in laboratory staff to process samples for anticoagulant monitoring outside regular laboratory hours. In the controlled setting of clinical trials, more than 50% of patients treated with UFH are over- or under-anticoagulated 24 hours after the start of therapy.⁴ The proportion of patients adequately anticoagulated in rural hospitals may be even lower because resources for anticoagulant monitoring in the rural setting are more limited. If there are fewer patients with therapeutic anticoagulant levels this may result in worse patient outcomes and possibly greater health care utilization from investigations and treatment of those complications. Furthermore, the overburdened rural physician will undoubtedly value the ease of administering LMWH.

Possible differences in outcomes, resource implications and values between rural and urban settings suggest that LMWH (and other therapies) should be assessed considering the unique attributes of a rural setting. However, the infrequent assessment of technology outside the urban/teaching hospital setting suggests that there may be barriers in this setting. In this study, we attempted to perform a simplified review of LMWH effectiveness and cost analysis by focussing on important differences between urban and rural practice that may influence the decision to incorporate LMWH in a rural hospital.

Methods

There were 2 parts to the study. In the first part, the evidence of effectiveness of LMWH and UFH for the treatment of ACS was compared. A systematic review was performed by reviewing all randomized controlled trials (RCTs) of LMWH for outcomes applicable to a rural hospital setting. Appropriate articles were identified through a MEDLINE search using the key words "heparin" and "acute coronary syndromes" or "unstable angina" and "randomised controlled study." All articles comparing LMWH to UFH were reviewed. All-cause and cardiovascular deaths were considered pertinent outcomes. We did not evaluate the use of invasive cardiovascular procedures such as angioplasty or cardiac surgery, although these are relevant outcomes, because these procedures are not performed at rural hospitals.

In the second part of the study, we assessed the practice of UFH treatment and performed a simplified cost analysis by estimating the actual costs of UFH treatment in a sample of patients admitted to the Chesley Site of the South Grey Bruce Health Centre, Chesley, Ont., compared to an estimated cost of LMWH treatment. For this analysis we considered only the difference in costs associated with drug treatment. We assumed all other direct and indirect costs such as nursing care, length of hospital stay, complication rates, hospital investigations, and hospital transfers remained the same regardless of type of heparin treatment. At the time of the study LMWH was not used at the hospital for the treatment of ACS patients.

All patients who were admitted during 1999 with laboratory records who had 2 or more activated partial thromboplastin time (aPTT) determinations during the hospital admission and a diagnosis of angina, non-Q wave myocardial infarction or ACS were selected for this part of the study. Hospital charts for these patients were

extracted to identify the timing, number and result of aPTT determinations as well as risk factors for ACS. Cost estimates for aPTT determination of both regular hour and after-hour testing (including laboratory technician call-in) were obtained from the hospital laboratory manager. Drug costs for UFH and LMWH were obtained from the hospital pharmacist.

Results

Effectiveness of LMWH compared with UFH

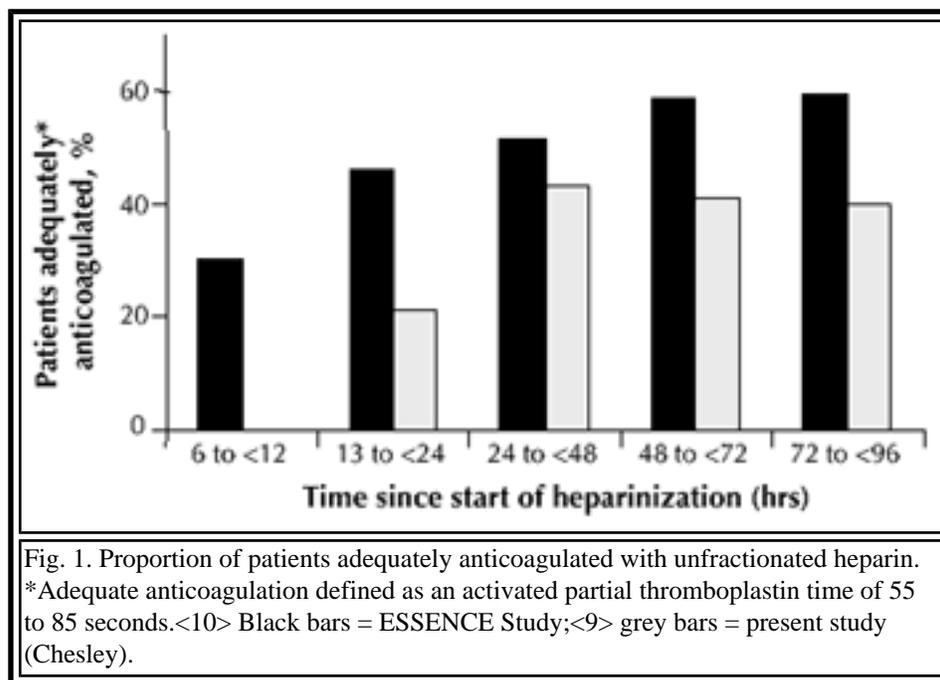
Three randomized controlled trials of LMWH for the treatment of ACS were identified and reviewed.⁸⁻¹⁰ The results from these trials are summarized in [Table 1](#). All studies had meaningful outcomes for rural hospitals; the most common outcome measure was a composite outcome of death, myocardial infarction, recurrent angina and urgent revascularization. Although we did not formally compare type of patient in our study with that of the RCT studies, it appeared that the inclusion criteria of the RCTs selected patients with similar disease severity compared to our study (see next section for our study patient characteristics); in fact, if there were differences, our study patients had more severe disease.

The FRISC study of dalteparin⁸ showed a non-significant increase in the main composite endpoint with a marginal increase in death at day 6. The 2 enoxaparin studies^{9,10} showed a relative risk reduction in outcome measures varying from 16% to 37.5%; most of these outcomes were statistically significant at $p < 0.05$. All studies showed no difference in major bleeding complications between the study groups.

ACS patients and UFH treatment

We reviewed the charts of all 38 patients admitted with a diagnosis of ACS in 1999. The characteristics of these patients ([Table 2](#)) were similar to the RCT trials of LMWH; differences were not statistically tested. The median age of patients was 68 years compared with RCT median age range 63 to 69 years; 50% were male (RCT 65%-71%).

Patients often were at high risk; 42% had ST-segment depression or T-wave inversion — two leads ≥ 0.1 mV — (RCT 46%-57%), and there was a high mortality risk (30 day post discharge mortality of 17%, approximately twice as high as RCTs).



All patients received UFH. The average patient weight was 76 kg. The mean duration of treatment was 3 days (median length of hospital stay was 4 days). There was an average of 1.4 aPTT measurements per day of UFH treatment. There was no on-site laboratory at the study hospital site; all aPTT determinations were performed at a hospital site approximately 40 minutes away. The laboratory performed aPTT determinations for 3 hospital sites of

similar size to the study site. Non-scheduled tests were couriered to that hospital (21% of all aPTT determinations). Fourteen percent of aPTT determinations were performed on evenings or weekends, necessitating a lab technician call-back. Generally, the proportion of patients in therapeutic anticoagulation range was lower than most trials of LMWH versus UFH. Figure 1 shows the therapeutic range in our study compared to the ESSENCE Study.⁹

LMWH treatment cost compared with UFH

The drug and monitoring cost for UFH and LMWH are shown in [Table 3](#). The cost of UFH drug and monitoring was calculated based on the average number of aPTT determinations and the proportion of tests that required a courier and/or after-hours laboratory technician call-back (Table 2). To simplify the costs analysis, we did not include the cost of infusion equipment (intravenous pumps and tubing) or nursing costs. Other costing studies have suggested that most of these cost savings are not recoverable (there is not a reduction in nursing costs if UFH IV infusion is not performed) and therefore they should not be included;⁶ regardless, these costs would increase the cost of UFH therapy, thereby further favouring LMWH over UFH. The total cost of UFH therapy per hospital admission was \$110 compared with \$91 for enoxaparin and \$65 for dalteparin.

Most costing exercises include a sensitivity analysis to examine the effect of modifying assumptions to the final cost estimates. We did not formally perform such analysis, in part because our model is simple and therefore the effect of the assumptions is quite apparent or easy to calculate. For instance, many rural hospitals, unlike ours, have in-hospital lab facilities and therefore do not have courier costs. For these hospitals the average cost of UFH treatment would decrease by the courier costs equal to \$18 per hospital stay ($\$20/\text{courier} \times 21\%$ of non-scheduled aPTT tests requiring a courier $\times 1.4$ aPTT tests/day $\times 3$ days of UFH/admission). Changing this assumption does not change the conclusion that LMWH is an attractive cost alternative to UFH. Similarly, the only 2 factors in the cost of LMWH treatment were the unit cost of LMWH and the weight of the patient. If the average patient weight were higher the cost of LMWH would increase in proportion to this increased average weight — up to a maximum dose depending on the type of LMWH. Again, reasonable increases in patient weight would not have an important influence on the cost difference between LMWH and UFH.

Discussion

Similar to other effectiveness reviews of LMWH at the time, we found evidence in the literature that enoxaparin is more effective in improving important outcomes than UFH.^{5,11-13} Because the outcomes (death and myocardial infarction) are as meaningful in a rural setting as they are in an urban setting and because patient characteristics are likely similar, we expect that these findings are relevant and generalizable to a rural practice. Unlike urban hospitals, LMWH drug costs of using enoxaparin in the treatment of ACS are lower than for UFH.^{6,7} Cost savings are achieved because the high cost of after-hours aPTT monitoring in rural hospitals without 24-hour or on-site laboratory services are not needed for LMWH, offsetting the higher cost of LMWH compared to UFH. Based on these findings — along with the ease of use, potential for fewer major bleeding complications, the potential for poor therapeutic treatment with UFH, and additional cost savings from fewer invasive procedures and hospital transfers — LMWH is the heparin of choice for rural hospitals for ACS treatment. We were able to demonstrate these cost savings in a simple costing exercise.

We learned several lessons from this exercise that may be useful when assessing other therapies in rural settings. First, it would have been reasonable to use a review of LMWH effectiveness as opposed to examining each RTC trial as we did in our analysis.^{5,11-13} We would have arrived at the same conclusions with less effort. Of note, several meta-analyses of LMWH for ACS and the final Cochrane review were published after this study was performed.¹⁴⁻¹⁶ These studies conclude that LMWH has equal efficacy as UFH. We reviewed the individual LMWH trials because of the long-standing concern that close attention should be given to potential differences in effectiveness of therapies between populations.¹⁷ The authors that popularized this concern have recently de-emphasized the approach because increasing evidence indicates that the relative benefit of therapies is constant across different populations. If, as we suspect from the chart reviews, our patients are at a somewhat higher baseline risk of developing adverse outcomes, there would be a greater absolute benefit of heparin treatment, with a lower number needed to treat (NNT).¹⁸ The finding that patients in RCTs are at lower risk than in clinical settings is a common finding that results from the design of clinical trials.¹⁹ We were also concerned that effectiveness reviews would not consider outcomes that are important to rural patients and/or physicians. In reality, most outcomes in effectiveness reviews — mortality and morbidity — are universally the most important outcomes.

EFFECTIVENESS	COST		
	Cheaper	Same cost	More expensive
Better	Do	Do	Consider
Same outcomes	Do	Consider	Don't do
Worse	Consider	Don't do	Don't do

Fig. 2. Decision table for a new therapy based on cost and effectiveness. In the simplified decision table, the task is to identify whether the new intervention is more or less effective and more or less costly. For therapies where there are equivocal differences other factors such as physician and patient values should be considered

Second, we demonstrated that a simple cost analysis can easily sort out whether a new therapy is potentially useful in a rural setting. In our approach, we envisioned a 3x3 table where the rows represent whether the cost of the new therapy is more, less or the same cost as the standard therapy. The columns indicate whether the new therapy is more, less or similarly effective (Fig. 2). The task of overburdened decision-makers is not to precisely define the cost or effectiveness of competing therapies, as is the common practice in costing analysis, but to simply and confidently decide into which box the new therapy best fits. If a therapy is more effective and cheaper, then clearly it should be adopted, regardless of the magnitude of the benefit or savings. When there are equivocal results (the same cost and effectiveness), other value factors such as patient or staff preferences should play a larger role in decision-making.²⁰ In this study, transportation and after-hours staffing issues resulted in higher costs in the rural setting. In rural settings there may be other therapies or processes of care that potentially reduce similar costs. Identifying these may yield opportunities for quick and similar cost evaluations that identify cost savings and/or improve care.

This article has been peer reviewed.

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Table 1. Summary of results of randomized controlled trials of low-molecular-weight heparin (LMWH) in treatment of unstable angina and non-Q wave myocardial infarction (MI)

Trial and outcomes	Control, % of patients	LMWH, % of patients	RRR, %	OR	95% CI	<i>p</i> value	ARR, %	NNT
FRISC<8>								
	Placebo	Dalteparin						
Death, MI, recurrent angina, urgent revascularization (6 d)	10.3	5.4	47.0	0.52	0.37–0.75	<0.001	4.9	20
MI (6 d)	4.4	1.4	68.0	0.31	0.16–0.60	0.001	3.0	33
Recurrent angina (6 d)	7.7	3.8	51.0	0.49	0.32–0.75	0.001	3.9	26
ESSENCE<9>								
	UFH	Enoxaparin						
Death, MI, recurrent angina (48 h)	7.4	6.2	16.0	0.83	0.62–1.09	0.18		
Death, MI, recurrent angina (14 d)	19.8	16.6	16.0	0.80	0.67–0.96	0.02	3.2	31
Recurrent angina (14 d)	15.5	12.9	17.0	0.08	0.65–0.98	0.03	3.0	33
TIMI 11B<10>								
	UFH	Enoxaparin						
Death, MI, urgent revascularization (48 h)	7.3	5.5	23.8	0.75	0.58–0.97	0.026	1.8	56
Death, MI, urgent revascularization (8 d)	14.5	12.4	13.6	0.86	0.69–1.00	0.048	2.1	48
MI (8 d)	4.8	3.4	37.5	0.71	0.51–0.97	0.028	1.4	71
RRR = relative risk reduction; OR = odds ratio; CI = confidence interval; ARR = absolute risk reduction; NNT = number needed to treat (to prevent one event); UFH = unfractionated heparin								

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Table 2. Characteristics of patients and UFH treatment for acute coronary syndromes in the South Grey Bruce Health Centre — Chesley Site, Chesley, Ont., 1999 (n = 38)

Variable	No. or %
Patient characteristics	
Median age, yr	68
Male, %	50
ST-segment depression or T-wave inversion on admission, %	42
History of previous angina, %	79
30-day post-discharge mortality, %	17
Unfractionated heparin treatment	
Median length of hospital stay, d	4
Mean duration of UFH treatment, d	3
Average aPTT tests per day	1.4
Non-scheduled aPTT tests (requiring courier transportation), %	21
aPTT tests performed on evenings or weekends, %	14
<p>UFH = unfractionated heparin; aPTT = activated partial thromboplastin time Non-scheduled aPTT tests include tests performed on evenings or weekends and necessitate transportation of the blood sample to the off-site laboratory. aPTT tests performed on evenings and weekends also required transportation to the off-site laboratory and frequently required call-in of laboratory staff for processing of specimens.</p>	

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Table 3. Unit drug and monitor costs for unfractionated (UFH) and low-molecular-weight (LMWH) heparin

		Per unit cost			
		UFH		LMWH	
Monitoring costs	Regular daytime aPTT	\$5			
	Lab technician call-in aPTT	\$113			
	Cost of lab courier	\$20			
Drug costs (\$/kg/d)	UFH	\$0.005	Enoxaparin	\$0.40	
			Dalteparin	\$0.26	
		Cost per hospital admission*			
		UFH		LMWH	
Monitoring costs	Regular daytime aPTT	\$23			
	After hours aPTT	\$86			
Drug costs	Unfractionated heparin	\$3	Enoxaparin	\$91	
			Dalteparin	\$65	
Total costs per hospital admission	Unfractionated heparin	\$110	Enoxaparin	\$91	
			Dalteparin	\$65	
aPTT = activated partial thromboplastin time *Cost per hospital admission is based on the following assumptions and assessments from the study patients: average patient weight = 76 kg; average duration of treatment = 3 days; enoxaparin dose = 2 mg/kg/d; dalteparin dose = 240 IU/kg/d; UFH dose = 320 IU/kg/d.					

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Vitamin B12 deficiency and megaloblastic anemia in elderly female patients in a rural community

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[\[résumé \]](#)

Vitamin B12 deficiency is a common problem in elderly females. The purpose of this study is to determine if macrocytic anemia is a useful indicator of vitamin B12 deficiency.

This study was conducted in the rural town of Noel, Nova Scotia, where one of the authors was the sole family practitioner. A retrospective chart review was completed on the 102 females over the age of 65 who were part of his family practice. Of the 50 women with documented B12 levels, 10 were deficient in vitamin B12. Of those 10, only 2 had red blood cell changes that suggested vitamin B12 deficiency. Thus, in elderly women with B12 deficiency, 90% were not anemic and 90% had normal mean corpuscular volumes. These results emphasize that vitamin B12 deficiency is often present without macrocytic anemia. This is important to consider because other studies have shown that irreversible neurological damage can occur without changes on the complete blood count, especially in the elderly population, and that early treatment can reverse the damage before it becomes permanent.

La carence en vitamine B12 est un problème courant chez les femmes âgées. Cette étude vise à établir si l'anémie macrocytaire est un indicateur utile de la carence en vitamine B12.

L'étude s'est déroulée dans la ville rurale de Noel (Nouvelle-Écosse), où l'un des auteurs était le seul médecin de famille. Les dossiers de 102 femmes de plus de 65 ans au nombre de ses patients ont fait l'objet d'une étude rétrospective. Parmi les 50 patientes dont les taux de vitamine B12 étaient documentés, 10 présentaient une carence en vitamine B12. Seulement deux de ces dix patientes présentaient des changements sur le plan des globules rouges indiquant une carence en vitamine B12. Par conséquent, au nombre des patientes âgées aux prises avec une carence en vitamine B12, 90 % n'étaient pas anémiques et 90 % présentaient un volume corpusculaire moyen normal. Ces résultats signalent qu'il arrive souvent que l'anémie macrocytaire n'accompagne pas la carence en vitamine B12. Il importe d'en tenir compte car d'autres études ont indiqué que des déficits neurologiques irréversibles peuvent survenir sans changement dans la formule sanguine, surtout chez les personnes âgées, et qu'un traitement rapide peut permettre d'enrayer l'apparition des déficits avant qu'ils ne deviennent permanents.

Introduction

Vitamin B12 is essential for proper bodily functioning. It is required for DNA synthesis, red blood cell maturation, and neuronal function. There are many causes of vitamin B12 deficiency, including inadequate diet, inadequate absorption, inadequate utilization, increased requirements and increased excretion. In the elderly, vitamin B12 deficiency can be caused by a decreased ability to absorb B12 from food sources.^{1,2} Although the exact pathology is not clearly understood, it is thought that reduced pepsin activity and reduced gastric acid secretion decrease the removal of B12 from dietary protein, making the vitamin unavailable for absorption despite adequate intrinsic factor production.³

The signs and symptoms of vitamin B12 deficiency tend to be nonspecific. Gastrointestinal manifestations may include anorexia, constipation, diarrhea or abdominal pain. Weight loss and glossitis may occur. Neurological

difficulties usually involve peripheral nerves causing decreased vibration and proprioception of the extremities as well as weakness and decreased reflexes.^{1,4} Ataxia, dementia, psychiatric disorders, impaired memory, impotence and changes in gait may also occur.^{3,5}

Because the symptoms of vitamin B12 deficiency tend to be nonspecific, it can be overlooked when other common diseases in the elderly are identified, including diabetes mellitus, peripheral vascular disease, osteoarthritis and Alzheimer's disease.⁶ Reports from the United States have found that between 10% and 30% of older adults may develop vitamin B12 deficiency and that only 34% of patients with low vitamin B12 levels are receiving appropriate treatment.^{2,3} This is distressing because studies have shown that early treatment of vitamin B12 deficiency can reverse the neurological and hematological damage before it becomes permanent.²⁻⁴

The purpose of this study was to determine how often vitamin B12 deficiency is present without macrocytic anemia. This is important to consider because other studies have shown that neurological involvement may occur without anemia, especially in elderly patients.^{1,3,4,7}

Methods

Noel, Nova Scotia, is a remote community 45 minutes by car from the nearest community hospital and has a population of 200 to 250 with a catchment area of 4000. At the time of this study there was only one family doctor practising in the area. Clinic computer records were used to obtain a list of all female patients 65 years or older. The original list was reduced by eliminating all the deceased patients and patients no longer seen at the clinic. The remaining 102 charts were used in the study.

The charts were reviewed, and vitamin B12 levels prior to treatment and the corresponding mean corpuscular volume (MCV) and hemoglobin level were noted. Age at time of testing was also noted.

The laboratory normal range for vitamin B12 was 116 to 781 pmol/L. Patients with vitamin B12 levels less than 116 pmol/L were considered deficient. The laboratory normal range for hemoglobin was 110 to 150 g/L. Patients with hemoglobin levels less than 110 g/L were considered anemic. The laboratory normal range for the MCV was 76 to 100 fL. Patients with MCVs higher than 100 fL were considered to have macrocytosis.

Data were entered and processed using Microsoft Excel and checked to reduce clerical error. Two-tailed t-tests were applied to the data for statistical analysis. Ninety-five percent confidence intervals and p values were determined to compare the mean age, B12 level, hemoglobin and MCV between the B12 deficient and non-deficient groups.

Results

Of the 102 charts reviewed, 50 contained a record of vitamin B12 levels from patients prior to treatment. The remaining 52 charts were not used in the study because 44 of them had no vitamin B12 levels available and 8 charts were from patients who received B12 treatment regularly but the chart information did not contain a B12 level prior to treatment.

Of the 50 women with documented vitamin B12 levels, 10 were deficient. Of these 10 patients, 1 was anemic and 1 had macrocytosis. [Table 1](#) compares the vitamin B12 deficient women to the non-deficient women. This table shows that there are no significant differences between the 2 groups of women with respect to age ($p = 0.9177$), hemoglobin level ($p = 0.8183$) and MCV ($p = 0.9347$).

Discussion

We have conducted a retrospective chart review of elderly female patients in a rural family practice. We have shown that 20% of the tested women were vitamin B12 deficient. Although this is not a prevalence study, it does emphasize how common vitamin B12 deficiency is in the elderly female population.

More importantly, we have shown that in elderly women with vitamin B12 deficiency, 90% were not anemic and 90% had normal MCVs. No significant differences with respect to age, hemoglobin or MCV were found between

vitamin B12 deficient and B12 non-deficient women (Table 1). These results emphasize the importance of not relying on the information provided in a CBC to screen for vitamin B12 deficiency.

Previous studies have shown that vitamin B12 deficiency can occur in the absence of anemia.^{4,6,8,9} However, this study found a much larger percentage of non-anemic, normocytic, B12 deficient patients compared with some of the previously reported values. A 1988 New England Journal of Medicine study showed that 28% of vitamin B12 deficient people were not anemic compared with the 90% found in this study.⁴ A 2000 review of cobalamin deficiency stated that between 17% and 33% of vitamin B12 deficient people have normal MCVs, but this study demonstrated that 90% of the vitamin B12 deficient women were normocytic.¹⁰

Limitations

This study would have been more complete if all the women in the community could have been sampled so that the true prevalence of vitamin B12 deficiency could have been determined. This would have improved the power of the study as well, making the conclusions more valid. It would have been interesting to examine the elderly male population as well.

An additional limitation to this study was that the reason for the vitamin B12 deficiency was not determined as part of the chart review. The main reason that time was not spent determining this information was that other reports have suggested that the large majority of elderly people who are B12 deficient have malabsorption of protein-bound vitamin B12 with no other underlying disease.^{2,3,5,8,9} However, additional information concerning the comorbidities of the patients could have been obtained to see if this population differed from the currently available data.

In this study no information was gathered on the symptoms, if any, that the women were experiencing. An interesting follow-up study would be to examine how many of the elderly patients with vitamin B12 deficiency experienced symptoms attributable to the deficiency and if the symptoms improved after treatment. Previous studies have shown that early detection and treatment of vitamin B12 deficiency can improve neurological and hematological damage related to vitamin B12 deficiency before it becomes permanent.^{3,4,7}

Conclusions

Given how common vitamin B12 deficiency is in the elderly and the benefits of early treatment, it is important to watch for the associated signs and symptoms and to screen for vitamin B12 deficiency using serum B12 levels. As this study clearly shows, patients do not have to be anemic or have an increased MCV when they are B12 deficient. Given the severe and irreversible neurological consequences associated with vitamin B12 deficiency, it is important to test elderly patients for vitamin B12 deficiency.^{7,9} The test is easily available to rural physicians in Nova Scotia. The treatment and follow up for vitamin B12 deficiency can be done in the rural practice without referring the patient elsewhere. This is a major advantage, given the lack of resources available in some rural settings and the difficulties associated with accessing major health care centres.

This article has been peer reviewed.

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Table 1. Data analysis* of the 50 women who had documented B ₁₂ levels			
Variable	B ₁₂ non-deficient, mean (95% CI)	B ₁₂ deficient, mean (95% CI)	<i>p</i> values
Mean age at time of test, yr	75.72 (72.91, 78.52)	75.40 (69.29, 81.51)	0.9177
Mean B ₁₂ level, pmol/L	224.50 (199.44, 249.56)	80.50 (59.51, 101.49)	<0.0001
Mean hemoglobin, g/L	131.23 (126.72, 135.74)	130.10 (120.56, 139.63)	0.8183
Mean MCV, fL	88.7 (87.01, 90.53)	88.93 (84.79, 93.06)	0.9347
*Before treatment, for those women who were deficient in vitamin B ₁₂ . CI = confidence interval; MCV = mean corpuscular volume.			

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Rural emergency department antibiotic prescription patterns for the treatment of childhood upper respiratory tract infections

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[[résumé](#)]

Objective: To examine the antibiotic prescribing habits for childhood upper respiratory tract infections in a rural emergency department (ED).

Design: A detailed chart review was conducted of 852 ED records spanning over a total of 8 months between August 2000 and July 2001.

Setting: The South Bruce Grey Health Centre in Walkerton, Ont.

Participants: Children 18 years of age or younger, who had an ED diagnosis of bronchitis, pharyngitis, acute otitis media or viral upper respiratory tract infection.

Main outcome measures: Antibiotic prescription rates for upper respiratory diagnoses. Rates were compared for variations based on patient age and gender, as well as the time of day and the season of year the patient was diagnosed.

Results: Antibiotics were prescribed to 59% of the patients diagnosed, with over half of the prescriptions going to those with acute otitis media (AOM). For the diagnoses of pharyngitis, bronchitis and AOM, antibiotics were given to 64%, 74% and 90% of patients, respectively. Patients were less likely to receive a prescription during the afternoon than during any other time in the emergency room ($p = 0.04$), possibly due to a decreased patient load and stress on the physician's time during this period. The season of year and patient age and gender did not have an impact on the likelihood of receiving antibiotics.

Conclusion: Prescription rates from this rural ED parallel those seen in other Canadian studies. AOM is the most common cause for antibiotic prescription, and should therefore be a focus in educating physicians about appropriate pediatric management.

Objectif : Analyser les habitudes de prescription d'antibiotiques pour une infection des voies respiratoires supérieures chez les enfants dans un service d'urgence rural.

Concept : On a analysé en détail les dossiers de 852 patients reçus au service d'urgence en huit mois au total, soit entre août 2000 et juillet 2001.

Contexte : Centre de santé South Bruce Grey Health à Walkerton (Ontario).

Participants : Enfants de 18 ans ou moins chez lesquels on a diagnostiqué, à l'urgence, une bronchite, une pharyngite, une otite moyenne aiguë ou une infection virale des voies respiratoires supérieures.

Principales mesures de résultat : Taux de prescription d'antibiotiques à la suite d'un diagnostic d'infection des voies respiratoires supérieures. On a comparé les variations des taux en fonction de l'âge et du sexe des patients, ainsi que de la période de la journée et de la saison de l'année au cours de laquelle on a posé le diagnostic.

Résultats : On a prescrit des antibiotiques à 59 % des patients chez lesquels on a posé un diagnostic et plus de la moitié des ordonnances ont été remises à ceux qui avaient une otite moyenne aiguë. Dans les cas où l'on a diagnostiqué une pharyngite, une bronchite et une otite moyenne aiguë, on a prescrit des antibiotiques à 64 %, 74 % et 90 % des patients, respectivement. Les patients étaient moins susceptibles de recevoir une ordonnance l'après-midi que pendant n'importe quelle autre période de la journée à l'urgence ($p = 0,04$), peut-être parce que le nombre de patients et le stress imposé aux médecins diminuent pendant cette période. La saison de l'année, l'âge et le sexe du patient n'ont pas eu d'effet sur la probabilité de recevoir des antibiotiques.

Conclusion : Les taux de prescription de ce service d'urgence rural ressemblent à ceux qu'ont constatés d'autres études canadiennes. L'otite moyenne aiguë constitue la cause la plus fréquente de prescription d'antibiotiques et il faut donc viser à informer les médecins au sujet de la prise en charge appropriée en pédiatrie.

Introduction

Despite a significant rise in the levels of antibiotic-resistant bacteria and strong evidence that the majority of respiratory infections are of viral origin, the level of antibiotic prescription use remains high.¹⁻⁴ Research has indicated that respiratory illness is overwhelmingly the most common reason for prescribing antibiotics,¹ with as many as three-quarters of patients who present with upper respiratory tract symptoms receiving a prescription.⁵⁻⁹ This is despite Canadian guidelines, which recommend taking a streptococcal culture of suspected pharyngitis cases, delaying the treatment of otitis media to see if the condition clears up on its own, and rarely treating bronchitis regardless of duration.¹⁰

The impact of current prescribing patterns is best observed in the pediatric population. Normal children suffer from about 8 "colds" per year, and it has been demonstrated that children under 5 have an average of 3.6 physician visits annually for respiratory illness.^{1,7} Otitis media has become the most common childhood diagnosis, and it is estimated that about 90% of these cases are still treated with antibiotics.^{1,9} The consequences of overprescribing include potential side effects, more visits to physicians and a greater expense for purchasing the medication. Most importantly, antibiotic treatment has been found to be an independent risk factor for the development of resistant bacteria,^{10,11} despite one-quarter of physicians still claiming that overprescription will not jeopardize their patients' health.¹²

Physicians have cited many reasons for why there is such a tendency to prescribe excess antibiotics. Parental pressure and the fear of losing patients are often named as major factors contributing to current habits, with over half of physicians saying they would reduce their prescribing if they did not feel that this pressure existed.¹² This is despite multiple studies showing that parent satisfaction is related to the amount and quality of time spent with them, rather than the receipt of an antibiotic.⁴⁻⁶ In addition, it has been demonstrated that physicians often have difficulty identifying which parents expect antibiotics, and overestimate the pressure for a prescription.^{4,5,13,14} This impression of expectation is often coupled with a lack of confidence in diagnostic skills for childhood illness, due to the overlapping symptoms of viral and bacterial illnesses.^{3,15,16}

Research has shown that rural physicians are more likely than their city counterparts to prescribe antibiotics.⁸ It has been demonstrated that the rate of prescription is higher for family doctors than for pediatricians, and higher still during emergency department (ED) shifts.^{1,17,18} This would indicate that those among the greatest at risk would be children living in rural communities, where pediatricians are rarely available and the ED is commonly used for respiratory examinations by patients unable to access busy family practices. Using the ED in this manner also means that an individual may see several family physicians over the course of the year, and therefore experience inconsistent prescribing patterns.

The objective of this study was to examine the antibiotic prescribing habits for childhood upper respiratory tract infections in a rural ED. Although previous research suggests that this group is among the greatest at risk for overprescribing, Canadian data have never previously been published for the pediatric populations in either the rural

setting or for ED treatment. With an estimated 9 million Canadians living in predominately rural locations, it is valuable to identify whether or not this population is at an increased risk of antibiotic misuse, in hopes of educating both local physicians and community about the associated danger.¹⁹

Methods

A detailed chart review was conducted of ED records of the South Bruce Grey Health Centre in Walkerton, Ont. Data were collected by the chief investigator for a total of 8 months between August 2000 and July 2001, to allow for seasonal comparisons. Each ED shift was covered by a single, on-site physician.

Subjects included in the study were patients 18 years of age or younger who had been clinically diagnosed with bronchitis, pharyngitis, acute otitis media (AOM) or viral upper respiratory tract infection (URTI, or "cold"). Exclusion criteria included patients returning to be treated for pharyngitis after Group A streptococcus was identified with a positive throat culture, and those given "delayed prescriptions" for AOM with instructions to wait 48 to 72 hours to see if the symptoms improved without antibiotics. When a treatment plan was not identified, it was assumed that no prescription was given. Data obtained included patient age, gender, primary diagnosis, attending physician, time of day, month of year and whether antibiotics had been prescribed.

For analysis, patients were divided into categories of 0-2 years, 3-5 years and 6-18 years of age. For seasonal analysis, "summer" was composed of the months of June, July and August, and January, February and March formed "winter." April and May were added for all other statistical calculations (e.g., gender, time of day) to reach the number needed for an adequate sample size; these months were chosen because of the high incidence of URTI diagnosis at this time of year. For time of day, "morning" was defined as registering at the ED between 8 am and 12 pm, "afternoon" from 12 pm to 6 pm, "evening" from 6 pm and 11 pm, and "overnight" from 11 pm to 8 am. Statistical analysis was performed using Pearson χ^2 and Fisher's Exact Test in SPSS for Windows, version 8, with significance set at 0.05.

Results

Population studied

During the 8 months examined, a total of 852 diagnoses for pediatric upper respiratory tract illness were made by 8 family physicians. As shown in [Table 1](#), acute otitis media and viral URTI were the most common diagnoses, each comprising 34% of the patients studied.

Diagnosis

Antibiotics were prescribed for 501 children, or 59% of the 852 patients studied. Categorized into diagnostic groups, prescriptions were given to 64% of those diagnosed with pharyngitis, 74% of those with bronchitis, and 90% of those with acute otitis media ([Fig. 1](#)). Having one of these 3 diagnoses made it significantly more likely that a patient would receive antibiotics than if the diagnosis of URTI had been given ($p < 0.001$). For those diagnosed with a URTI ("cold"), antibiotics were given to 18% of patients. Fifty-one percent of the total antibiotics prescribed were for the treatment of AOM.

Time of day

Of the children included in the analysis, 30% presented to the ED in the morning, 22% in the afternoon, 33% in the evening and 15% overnight. Comparing the likelihood of receiving antibiotics during these times, it was significantly less likely that the child would receive a prescription if presenting during the afternoon than during any other part of the day ($p = 0.04$). The results of each time of day are displayed in [Fig. 2](#).

Season of year

During the summer months, 97 (61%) children were treated with antibiotics out of a total of 158 diagnosed with

URTI. There was no significant change in prescribing patterns during the winter months, when 252 (56%) out of 447 children were started on antibiotics.

Gender and age of patient

Boys accounted for 49% of the patients diagnosed. As shown in [Table 2](#), there was no effect of gender on likelihood of receiving a prescription, and patient age had no significant effect on prescription patterns, although there was a trend for a lower rate in those 3 to 5 years old ($p = 0.10$).

Discussion

It has been estimated that overprescription is responsible for half of the money spent on childhood antibiotics annually,⁷ with the vast majority of these prescriptions going to patients diagnosed with otitis media, pharyngitis or bronchitis.¹ The results of this ED chart review confirm that Canadian guidelines are not being followed in many cases of pediatric URTI, with 59% of children diagnosed being prescribed antibiotics.

This level of prescription is very similar to that found by Pennie,¹ whose prospective analysis of primary care offices in Ontario showed that 61% of children with acute respiratory illnesses were receiving antibiotic prescriptions. Similarly, a St. John's, Nfld., study³ showed a prescription rate of 64%, and a Toronto-based study⁷ of over 140 000 preschool children showed comparable levels to this analysis for each of the different respiratory diagnoses. These similarities in prescription levels therefore suggest that, despite previous research indicating otherwise,^{1,17,18,20} being treated in this rural ED by family physicians did not greatly affect a child's likelihood of receiving antibiotic treatment.

Pharyngitis, bronchitis and AOM all contributed to the high rate of prescription, with diagnosed patients receiving antibiotics 64%, 74% and 90% of the time, respectively. For change to be implemented, all 3 of these diseases will therefore need to be addressed in educating physicians and the public. For example, Little et al¹⁴ had physicians attempt a "wait-and-see" approach for appropriate AOM cases, resulting in a 76% reduction in prescriptions for this diagnosis. As over half of the antibiotics prescribed in this study were for otitis media, an approach such as this would prove to have a significant effect.

Although it could be debated whether "bronchitis" is an URTI diagnosis, the decision to include it in this analysis was based on 3 factors. First, a recent study by Dosh and colleagues⁹ argued that URTI, sinusitis and bronchitis should be considered a single entity, despite the considerable weight some attach to nonspecific symptoms such as cough and chest sounds. Second, recommendations for the treatment of bronchitis were included in the pediatric URTI treatment guidelines endorsed by the Canadian Paediatric Society. Lastly, the inclusion of this diagnosis in recent studies allowed for more direct comparisons between this analysis and conclusions reached by other authors.

The time of day that children presented to the ED had a significant effect on the probability of receiving a prescription, it being less likely during the afternoon than at any other time in the day. Pressure for time is one of the reasons physicians may resort to writing a quick prescription rather than taking the time to explain the natural course of viral disease to each patient. More patients were seen in the ED during the morning and evening hours, and it was during these busy hours that there was a greater tendency to give a prescription. Since no rise in antibiotic prescription was seen during the winter months, where respiratory illness was far more common, it may be that the rate of prescription is associated with the number of patients in the ED rather than simply the number of respiratory cases seen by a physician. More research into this association is warranted.

Although it has been previously published that there is an age effect in a child's likelihood of receiving antibiotics,¹¹ no correlation was demonstrated with either patient age or gender in this study.

Limitations to this study include a small number of family physicians, and records from only a single site. In addition, an increase in the number of years studied could be used to give added strength to comparisons between seasons, especially because a recent outbreak of *Escherichia coli* infections in the area could have affected parents' expectations to have their children on antimicrobials. The objective of this project was to give an accurate portrayal of a rural community's current status with regard to antibiotic prescribing, in hopes of educating local physicians about prescription patterns. As a follow-up to this study, each physician was offered a breakdown of their individual prescribing habits, and a presentation was made to local health care professionals regarding the collective patterns.

Conclusion

In this study of a rural ED, 59% of children diagnosed with an URTI received antibiotics, a percentage comparable to other Canadian studies. Acute otitis media, pharyngitis and bronchitis all contributed to this high level of prescription, whereas very few patients diagnosed with URTI, or a viral cold, were given antibiotics. No seasonal, gender or age effects were found. Patients were less likely to receive a prescription during the afternoons than during other busy parts of the day, possibly due to the amount of time permitted to spend with each patient. Strict prescribing habits and continued diligence in education are required to combat the risks associated with antibiotic misuse.

This article has been peer reviewed.

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Table 1. Children diagnosed with upper respiratory illnesses

Diagnosis	No. of patients (and %)
Pharyngitis	146 (17)
Otitis media	285 (34)
Bronchitis	131 (15)
URTI	290 (34)

URTI = upper respiratory tract infection

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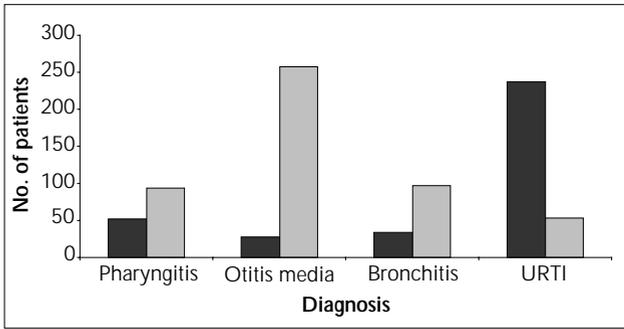


Fig. 1. Diagnoses and antibiotic prescriptions for 852 children. Black bars = No antibiotic prescribed; grey bars = Antibiotic prescribed. URTI = upper respiratory tract infection.

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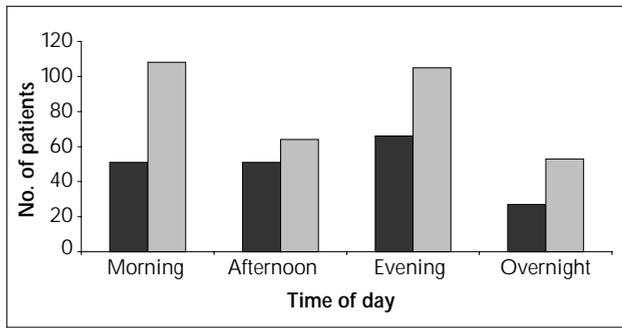


Fig. 2. Time of day and antibiotic prescriptions for 525 children. Black bars = No antibiotic prescribed; grey bars = Antibiotic prescribed. See Methods section for definition of times of day.

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Table 2. Prescription rates, by patient gender and age		
Patients	No antibiotics prescribed (and % of gender or age group)	Antibiotics prescribed (and % of gender or age group)
Gender		
Male	172 (41)	247 (59)
Female	179 (41)	254 (59)
Age, yr		
0-2	80 (42)	111 (58)
3-5	72 (37)	124 (53)
6-18	198 (43)	267 (57)

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The occasional stovepipe cast

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Stovepipe casts immobilize the leg with the knee joint in extension. Indications include fractures of the patella with an intact extensor apparatus (6-weeks of casting needed), isolated medial collateral ligament tears (usually the knee is casted in 20° of flexion for 6 weeks) and post-op following patella surgery.

Step 1

Lay out the supplies (Fig. 1).

- 2 lengths of stockinette (usually size 7.5-cm for women, 10-cm for men), each long enough to reach from the patient's groin to the proximal foot.
2 rolls of 15-cm soft-roll padding material
4 rolls of 15-cm plaster
two 2-3 layer 10-cm width plaster slabs, each approximately 37.5 cm long
bucket of water, 15°-20°C
scissors.



Fig. 1

Step 2



Fig. 2

Position the patient flat on his or her back, with a support under the Achilles tendon (Fig. 2). Some physicians prefer the knee in 180° of extension, while others prefer the knee in a slightly flexed (15°-20°) "anatomical position."

Step 3

Apply the first piece of stockinette cut to fit from the groin to below the ankle (Fig. 3), and then apply the second stockinette on top of this, so that there is a double layer of stockinette on the patient, to prevent "shearing."



Fig. 3

Step 4

Begin by applying the first roll of soft-roll, starting at a point about 10 cm above the malleoli (Fig. 4). Work upward (Fig. 5), ending at a point 12.5-15 cm below the proximal edge of the stockinette and then work downward again. Each turn should overlap by 50% the previous turn. Begin applying the second roll of soft-roll from where the first roll ends. Be sure that about 15 cm of stockinette is left exposed at each end of the leg (Fig. 6).



Step 5



For added comfort, make small "flanges" (Fig. 7) at the proximal and distal ends by folding in half transversely a piece of soft-roll that is long enough to encircle the limb. For added comfort, to prevent pressure sores and to compensate for any leg atrophy that might occur, make sure the knee area is well padded, adding 1 or 2 slabs of soft-roll over the knee anteriorly and posteriorly.

Step 6

You are now ready to apply the plaster. Soak the first roll for 3 to 5 seconds in the bucket of water and then squeeze it gently to allow excess water to drain. Start applying plaster at the ankle end, just above the flange (Fig. 8) and then work upward, each turn overlapping by 50% the previous turn, and ending just below the flange at the groin end. Apply the second roll of plaster, beginning at the point where the first roll ended.



Step 7

Apply anterior and posterior slabs over the knee (Fig. 9), being careful not to allow the leg to slip into hyperextension. The exposed stockinette at the proximal and distal ends is then turned up over the plaster (Fig. 10, Fig. 11).

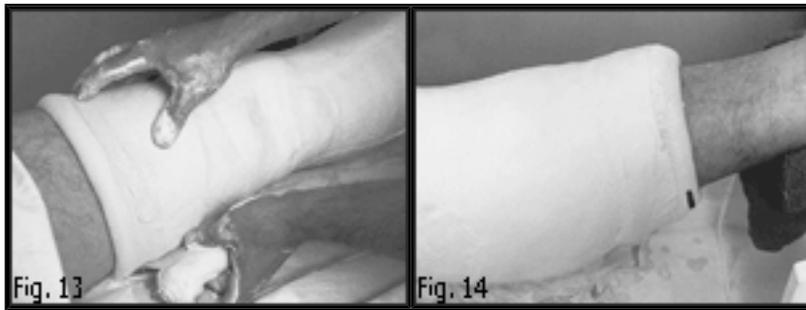


Step 8



Mold the cast carefully with your hands (Fig. 12), giving special attention to the areas around the condyles. Support the knee joint with your hand to prevent it going into hyper-extension. Be careful not to push the patella upward or downward out of position!

Step 9



Begin applying the third roll of plaster, starting at the groin end and working downward (Fig. 13). Continue with the 4th roll of plaster, again starting at the point where the third roll has ended. (Use of a 4th roll depends on the size of the patient. It is not always necessary in smaller patients.) Cover at least half of the stockinette (Fig. 14) at the upper and lower ends. Finally, smooth the cast.

Step 10

Depending on the exact nature of the bone or ligament injury, the patient may begin weight-bearing immediately, or after the appropriate interval.

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Sustainability and collaboration in maternity care in Canada: dreams and obstacles

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[\[résumé \]](#)

The shortage of maternity care providers in Canada is a trend that has been developing over the past decade and is being felt most acutely in rural and remote communities. The potential for integrated care models to provide a solution to the problem of providing 24-hour/365-day coverage for low-risk intrapartum care is discussed. Preliminary findings from exploratory work with 3 rural British Columbia communities are included. Human resource needs are explored by using family physicians, midwives and nurses with obstetric experience. Essential components to the success of integrated care models are identified from the literature. Obstacles to collaboration are discussed, and suggestions offered for potential solutions.

Au Canada, la pénurie de prestataires de soins en maternité est une tendance apparue au cours de la dernière décennie et s'est fait sentir le plus vivement dans les communautés rurales et éloignées. On analyse la possibilité qu'offrent des modèles de soins intégrés pour régler le problème de la prestation 24 heures sur 24, 365 jours par année, d'un service de soins périnataux aux patientes à faible risque. On présente les résultats préliminaires des travaux d'exploration réalisés dans trois communautés rurales de la Colombie-Britannique. On explore les besoins en ressources humaines au moyen de médecins de famille, de sages-femmes et d'infirmières possédant de l'expérience en obstétrique. On repère dans la littérature scientifique des éléments indispensables à la réussite des modèles de soins intégrés. Enfin, on analyse les obstacles à la collaboration et on formule des suggestions de solutions éventuelles.

It is important for me to state very clearly at the outset that I am neither a physician nor a rural practitioner at the present time. I am an experienced midwife, and in my career I have practised in rural Nova Scotia, rural and urban England, and currently I am working in urban and suburban Ontario. During my sabbatical leave I have been exploring integrated care models for maternity care and their potential to help alleviate the crisis in maternity care providers in rural and remote communities. This past year I have primarily been involved with communities in rural BC, but have also worked in Inukjuak, Que., as a midwife in a remote Nunavik community providing prenatal, intrapartum and postpartum care for low risk women as part of a team of community midwives, nurses, and family physicians.

The problem

It is well known that Canada is facing a shortage of maternity care providers in a trend that has been developing over the past two decades.¹⁻⁵ This shortage is being felt most acutely in rural and remote communities. For years, maternity care has been provided in these communities by family physicians with the assistance of registered general nurses. Increasing numbers of family physicians are deciding not to provide intrapartum care. Rural hospitals are finding it equally difficult to attract nurses with maternity care experience. More than one-third of Canadian hospitals have fewer than 100 births per year and almost two-thirds have fewer than 500 births per year.⁶ In hospitals with small birth numbers, nurses and physicians may find their intrapartum skills rarely used, which can lead to a loss of confidence. Of the family physicians who continue to provide intrapartum care, many are experiencing burnout due to the additional on-call responsibilities. With the legal recognition of midwifery in many of the provinces and territories, it is time to explore ways in which midwives can contribute to creating solutions to these problems.

There is evidence to indicate that maintaining maternity service provision in rural and remote communities improves obstetric and neonatal outcomes. Studies looking at birth outcomes from small communities in northern Ontario, British Columbia, Nova Scotia, New Zealand, Australia and the United States have demonstrated that the perinatal

mortality and morbidity rates have been equivalent to or better than communities with advanced facilities, even in the absence of cesarean section capability.⁷⁻¹² Research evidence from Nesbitt has shown that in communities where there is a "high outflow" of parturient women, the perinatal mortality and morbidity statistics worsen for all women from that community, regardless of place of delivery.¹²

In many cases, women and their families are leaving their home communities up to 4 weeks prior to their due dates and residing in hotels or with relatives until the birth of their baby. In the most remote communities, women are usually flown out alone, and accommodated in hostels located in large cities, completely unfamiliar to the expectant mothers. The emotional, social, and financial costs to these women and their families are immense.¹³ The Society of Obstetricians and Gynaecologists of Canada (SOGC), in its policy statement, identified the additional problems facing Aboriginal peoples and recommended that health care professionals recognize the need to provide health services for Aboriginal peoples as close to home as possible.¹⁴

Preliminary findings

In a preliminary study of maternity care in 3 adjoining rural communities in BC, interviews were held with hospital administrators, family physicians, hospital and community nurses, and childbearing women. The author used open-ended questions to gain an understanding of the factors that contribute positively or negatively to the provision of maternity care. In addition, potential interest and acceptability of an integrated care model in which midwives might work as part of the maternity care team was explored.

Many of the issues raised reflected the existing literature.¹⁵⁻¹⁷ Rural physicians report challenges such as insufficient off-call time, inability to participate in continuing medical education events, unavoidable social contact with patients, and limited support from colleagues for providing maternity care. On a clinical level, restricted access to support services and difficulties with transport to referral centres were also reported as problems, along with the frustration of having to deal with residents when consulting or transferring care. There was also a sense that specialists "look down" on rural practitioners. All of these factors add to the isolation and stress of providing maternity care in small communities.

There was broad support from many of the physicians providing intrapartum care, nurses, and hospital administrators for the idea of an integrated care model in which midwives could work with the existing care providers. A number of challenges were identified which will be addressed under the "Obstacles to collaboration" heading in this article.

Does anyone care?

There is clear support from many respected quarters for the provision of maternity care for healthy women in their home communities. The Joint Position Paper on Rural Maternity Care, the BC Reproductive Care Program consensus conference and, more recently, the London conference in November 2000 have all indicated that there is a shared goal to support practitioners in providing local maternity care.¹⁸⁻²⁰ So how do we do it?

I use the word "we" intentionally because no one profession alone can solve the problem. We have too few family physicians who want to provide intrapartum care, too few rural nurses with maternity experience, and too few midwives for any one group alone to be able to make a significant difference. However, with the commitment to maintain high quality local maternity services on the part of the caregivers as well as the community, and a willingness to think outside of our traditional silo approaches to care, we may be able to develop interdisciplinary approaches that can be effective.

Human resource needs

Recognizing that intrapartum care is the lynchpin of a functional local maternity service, let's consider the human resource needs. We need 24-hour, 365 days a year (24/365) access to skilled labour monitoring and care, 2 skilled attendants for care of the mother and baby at birth, and a referral and transport service for women who develop intrapartum complications or their neonates who need tertiary care. In large hospitals this is achieved by staffing the labour ward with skilled maternity nurses, family physicians and midwives being on-call for their own patients or in call groups with their peers, and obstetricians being available for consultation and referral of women with complications.

In rural areas this might be achieved by midwives rotating on-call responsibilities with the family physicians who provide intrapartum care so that physicians do not have to be on call except when they are on call for the emergency department. If there is no nurse with maternity skills available, why could a midwife not be called to provide monitoring and care in labour, and to assist the physician at delivery? And conversely, why would it not be possible for the nurse or the physician on call to assist the midwife at delivery? Many communities are already relying on nurses with maternity experience to be on call for labouring women where annual birth numbers are small.

Let's figure out how many primary maternity caregivers are needed to provide care for a given population. We know from midwifery practices in Ontario that less than 4 does not provide adequate on-call coverage and off-call time when 24/365 care is provided to 160 women. Many rural communities have less than 160 births per year, but that doesn't reduce the need to provide 24/365 service. Each community will have a unique blend of caregivers, parturient women, and geography to make a "one size fits all" model completely inappropriate.

Most physicians do not consider it reasonable to be on call more than 1 night in 5 for the emergency department.¹⁷ If you had 2 physicians doing intrapartum care and 2 midwives in a community, the physicians could each be on call 1:5 and the midwives each 3:5, and you should have at least 31 weeks of overlap for holidays, illness and study leave. This would be in addition to the off-call time that is already scheduled into the system (e.g., 12 nights per month for midwives and 24 nights for physicians), which could include rotating weekends off. [Table 1](#), [Table 2](#) and [Table 3](#) illustrate the possible on-call rotas for such a shared care model. Depending on birth numbers in the community, the system would function best with 2 or more nurses with intrapartum experience also on call in a rotation that guaranteed coverage when there was no midwife on call. It would also provide an option to be called as a second attendant for midwife births as needed.

In order to share on-call rotations for intrapartum care it would be optimal to have some way of introducing pregnant women to the other care providers during prenatal care. This could be accomplished by sharing prenatal care among the 2 physicians and 2 midwives, or scheduling one visit in the 2nd or 3rd trimester with each of the other physicians and midwives, or hosting "Meet the Team" nights once a month, when women are invited to an informal evening to discuss on-call arrangements and meet the other care providers. This could be held at the local hospital and include the maternity nurses. All cases could be reviewed by the team at 34 weeks to review risk factors and agree on a plan of care.

Midwives could also provide outreach prenatal care to populations who have difficulty accessing existing services. In addition, midwives could share responsibility with existing community nurses to increase postpartum care for mothers and babies in the community. These prenatal, intrapartum and postpartum clinical settings could provide excellent learning opportunities for medical, nursing and midwifery students to see teamwork in action and to model a sustainable way of working that supports care providers to offer maternity services for the long haul.

Essential components

What do we need to make this dream a success? Davies and Stapleton^{21,22} suggest the following essentials:

- a desire to maintain local maternity services on the part of the community and the caregivers;
- mutual respect by the members of the maternity care team and a valuing of the skills and contributions of each member, acknowledging their interdependence;
- communication that encourages dialogue designed to explore different perspectives, and a willingness to discuss differences;
- a non-hierarchical structure in which all participants work together with equal power and responsibility;
- professional competence and an awareness of the strengths and limitations of one's own and others' disciplines;
- shared responsibility and accountability;
- shared values, goals and vision;
- a willingness to commit time and energy to the process; and
- commitment of leaders to reinforce collaborative behaviour.

Shared clinical protocols, meeting at least fortnightly to review cases, careful data collection to evaluate maternal and neonatal outcomes, public education about the benefits of the model in maintaining local maternity services, and a genuine desire to make it work would also be necessary components. What are the current obstacles to the success

of such a model?

Obstacles to collaboration

Resistance to change may be the biggest hurdle to overcome. It is difficult to acknowledge that what we are doing is not achieving the desired result, and it is a normal human response to be wary of change.

There are also those old familiar professional allegiances, which serve to undermine true collaboration. Unfortunately, that is a disease that has affected medicine, nursing and midwifery. Hopefully a cure will be found through more interdisciplinary educational opportunities as well as from the experience of pioneers in collaborative care models. Surely our common goals of providing safe, family-centred, evidenced-based maternity care are worthy of an attempt to put aside our differences and work as a team.

Regulatory colleges have identified the scope of practice for midwives within clear limits that are very similar among the provinces where midwifery is legally recognized. This scope does not include vacuum delivery, surgical assist in a cesarean section, ordering oxytocin augmentation or induction of labour, ordering prostaglandin for induction of labour or for postpartum hemorrhage unresponsive to other therapies. It could be argued that in an urban setting consulting with a physician is a very appropriate step in each of the above situations. However, in rural settings, this necessitates having a physician with intrapartum experience on call in order for the midwife to consult or transfer care. While such interventions are not needed in the majority of cases, this serves to undermine the effectiveness of midwives and family physicians sharing an on-call rota. The solution could be an "Advanced Certification for Midwives Working in Rural and Remote Communities," which could allow midwives to be trained in additional skills and to undertake an expanded scope of practice in designated communities.

Another possible solution to the consultation issue is to use a network of physicians involved in providing intrapartum maternity care from a wider number of communities. This works successfully in Nunavik, where the family physician on call on any given night might be from 1 of 7 different communities. Consultations for medical or maternity problems are conducted on the telephone, and direction given or medevac arranged. Another option could be for the on-call physician at the referral hospital to fulfil this function.

Funding has been a recurring barrier to integrated care models. Fee-for-service and course-of-care payment models in which most physicians and midwives are compensated do not lend themselves to collaboration. In addition, most maternity nurses who agree to be on call in rural communities are not paid any on-call fee. They are usually paid "overtime" for the time they are actually providing care. This reliance on goodwill is not a recipe for long-term sustainability of the maternity service in any community. Although it is recognized that funding agreements have been negotiated between professional associations and provincial governments to meet provincial needs, alternative funding models are needed for rural and remote communities. Surely this is the role of pilot projects, funded over a 4- to 5-year period, with evaluation mechanisms to determine the health benefits and cost effectiveness of the model. If the results demonstrate improved access to care, satisfactory clinical outcomes, and cost effectiveness for rural communities, the professional associations need to include such funding models as options in future agreements with provincial governments.

Structural barriers also exist that impede the development of interdisciplinary care models. The First Nations and Inuit Health Branch of Health Canada (FNIHB) has not yet recognized midwifery as a fundable position within health programs on Aboriginal reserves. First Nations' health clinics are often excellent examples of interdisciplinary teamwork in providing accessible, culturally sensitive health care, but like Ontario community health centres, they rarely provide intrapartum care. Given that midwives are currently working in 5 provinces and will be recognized in 2 territories in the near future, it is time for the FNIHB to make this change. The federal government also needs to make the necessary changes to the Narcotics Act to allow midwives to order narcotic analgesia for women in labour, without a physician consult.

Professional associations could do more to promote interprofessional initiatives. Too often in the past their positions have not supported collaborative efforts. The Canadian Medical Protective Association (CMPA) has also been hesitant to support interdisciplinary initiatives where there is any possibility that physicians may be assisting midwives at births (e.g., when a nurse or second midwife might not be available). Support from leaders in the medical profession for interdisciplinary initiatives could be very useful in encouraging the CMPA to support the trial of integrated care models.

Where do we go from here?

There have been a number of successful interdisciplinary initiatives in the US that have increased access to maternity care for women in rural areas.²³⁻²⁵ They have demonstrated an increased uptake of prenatal care, good maternal and neonatal outcomes, and successful working relationships between midwives and physicians as a result of collaborative approaches to care. Maternity care initiatives in Nunavik and Rankin Inlet are enabling increasing numbers of Inuit women to give birth in their home communities as well as providing training opportunities for Inuit women to become midwives.^{26,27}

The time for innovative approaches to collaborative maternity care is now. The crisis in maternity care providers is already evident in our rural and remote communities.²⁸ Let's start talking, consider how to move forward with collaborative demonstration projects, and find ways of working together to provide high quality, sustainable maternity care in local communities.

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Table 1. Possible on-call rotas for a shared care model. Example one: One physician off call = 6 nights on call for one physician (P1), 12 nights on call for each of 2 midwives (M a and M b)

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
P1	M a	M a	M b	M b	P1	M a
M a	M b	M b	P1	M a	M a	M b
M b	P1	M a	M a	M b	M b	P1
M a	M a	M b	M b	P1	M a	M a
M b	M b					

P1 = physician on call for 6 nights; M a = 1st midwife; M b = 2nd midwife, each on call for 12 nights

[\[Return to text\]](#)

Table 2. Possible on-call rotas for a shared care model. Example two: One midwife off call = 6 nights on call for each of 2 physicians (P1 and P2), 18 nights on call for 1 midwife (M a)

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
P1	P2	M a	M a	M a	P1	P2
M a	M a	M a	P1	P2	M a	M a
M a	P1	P2	M a	M a	M a	P1
P2	M a	M a	M a	P1	P2	M a
M a	M a					

P1 = 1st physician, on call for 6 nights; P2 = 2nd physician, on call for 6 nights; M a = one midwife, on call for 18 nights

[\[Return to text\]](#)

Table 3. Possible on-call rotas for a shared care model. Example three: No one off call = 6 nights on call for each of 2 physicians (P1 and P2) and 9 nights of call for each of 2 midwives (M a and M b)

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
P1	P2	M a	M a	M a	P1	P2
M b	M b	M b	P1	P2	M a	M a
M a	P1	P2	M b	M b	M b	P1
P2	M a	M a	M a	P1	P2	M b
M b	M b					

P1 = 1st physician, on call for 6 nights; P2 = 2nd physician, on call for 6 nights; M a = 1st midwife, on call for 9 nights; M b = 2nd midwife, on call for 9 nights

[\[Return to text\]](#)

Not just a patient

CJRM 2003;8(3):199

To the Editor:

In response to Dan Reilly's Podium article¹ "Not just a patient: the dangers of dual relationships," I have the following comments.

I am a rural family physician and have worked mainly in rural British Columbia and now in the Northwest Territories for the past decade-plus. Among my patients I have had several who are friends or colleagues. As someone commented in an article on boundaries a few years ago, "If you are living in a small town and you don't have any patients who are also your friends, you either have few friends or few patients". Of course, these relationships can sometimes be challenging and demand that both parties be scrupulous in their recognition of the various roles. But, caring for those you know in other capacities is also among the honours and privileges of being a family physician in a rural setting. It is also a skill that needs to be learned and maintained with conscious attention. However, it can be done, and well done at that. It is possible to maintain various "hats" with those you serve, and who in turn serve you in various ways, and/or who are your friends and colleagues.

I would like, with the permission of my friend and colleague and her family, to describe a relationship that has many facets and which we have maintained for about 6 years. Carrie and I first met as colleagues — I being a family doctor and she our solo pediatrician — when she moved to our town in early 1997. We became friends, enjoying skiing, social events and medical interactions together. Late in 1997 Carrie married and became pregnant. She asked me to be her family doctor, wanting, I believe, a female physician competent in primary care obstetrics. We agreed early on that if there were any problems I would quickly refer her to our (also solo) obstetrician. I was honoured to accept the responsibility and quite aware of the different roles we shared, but felt up to the task. Then Carrie's new husband was tragically killed in an avalanche, and the pregnancy took on an even deeper meaning, re-enforced by her father-in-law's charge to me that "I hope you're the best in the business because this baby is really important!"

I again asked Carrie if she wished to be referred for specialist care and she declined "unless we really need it." Of course, there were moments when the responsibility seemed intense but I felt well able to keep a clear head when it came to the doctor-patient part of our relationship. Meanwhile, our friendship intensified in the light of her husband's death, and I in turn frequently consulted her for matters pertaining to pediatrics. Happily, a healthy son was delivered in June 1998. That son has become a young friend of my younger son and so we have yet another role — mothers of small children who are friends and who play together, and occasionally tussle together! In 2002 Carrie remarried and has gone on to have a second healthy child this January, and again I had the honour and privilege to be her physician. Even more wonderfully, I had the privilege not only of delivering both of her children, but it so happens that I had delivered her new husband's 9 year-old son. His mother died of a malignancy and the boy seems quite pleased that I remember his birth and have a deep tie to both sides of his new family.

Yes, sometimes dual (or multiple!) relationships can be "dangerous." We all know the folklore that caring for our physician and nursing colleagues is anxiety-producing because they are said to have more complications, whether studies bear this out or not. However, I would like to think that most of us in rural practice are able to handle such relationships and as quietly and as openly as necessary to submit them to scrutiny and make them work.

Leah Seaman, BSR, MD, CCFP
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1. Reilly DR. [Not just a patient: the dangers of dual relationships](#). Can J Rural Med 2003;8(1):51-3.

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Sex before surgery?

CJRM 2003;8(3):199-200

To the Editor:

A previously well 72-year-old gentleman was scheduled for anterior resection of a recto-sigmoid cancer in our community hospital. He was to see his GP anesthetist 5 days prior to surgery for a pre-op assessment. However, the morning prior to that assessment he presented to the emergency department with chest pain brought on by sexual intercourse. Investigations suggested a non-ST segment elevation inferior myocardial infarction. Angiography done 5 days later showed distal single vessel coronary artery disease; this was managed medically.

Review of his history confirmed that the patient was previously asymptomatic with no obvious risk factors and a negative family history for coronary artery disease. He was physically active including daily walks with frequent hill climbs. His infarct appears to have been precipitated by vigorous sexual activity. This gentleman's colon surgery was rebooked for a tertiary care centre.

In light of the above, might one consider sexual activity as a screening test for coronary artery disease in low-risk elderly patients presenting for major surgery? This would certainly be cheaper than formal cardiac stress testing and, from the patient's perspective, more enjoyable. I recommend a head to head trial of sex versus treadmill, recognizing that quality control issues may be problematic.

James E. Petzold, MD
Gibsons, BC

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Women's Advanced Maternity Fellowship for rural practitioners

CJRM 2003;8(3):200

To the Editor:

We are pleased to announce that the Women's Advanced Maternity Fellowship for Rural Practitioners is now being offered through generous donations from Weyerhaeuser, Bank of Montreal, Bell Canada, Provincial Health Services Authority, and Interior Health Authority. These organizations have offered support to further the provincial mandate of BC Women's Hospital to provide competent maternity care to all women and babies in the province of British Columbia.

What does this initiative mean for the communities of BC? First, it offers additional support for physicians to develop and maintain skills in maternity and newborn care; this is to augment the Enhanced Skills Program offered by the University of British Columbia (UBC) and the Rural Education Action Plan (REAP). REAP provides generous funding for rural practitioners to obtain skills in any advanced area of practice, including maternity and cesarean section. The Fellowship offers funds to new grads but only in the maternity and newborn area. New grads are not covered by REAP.

Second, it offers educational programs for nurses from communities in need. The program will be tailored to the needs of individual nurses and their communities and will include components from the BC Reproductive Care Program, the BC Institute of Technology and BC Women's nursing education programs. We are also willing to sponsor education for midwives or other health professionals providing maternity care. It is clear that we are helping to build and sustain the entire maternity care team — as all members are needed to keep maternity care in rural areas viable.

Finally, there are funds in this initiative dedicated to the further development of Women's Telehealth initiative: this means that the program will provide support for existing Telehealth connections and programs, curriculum development, and other Telehealth projects.

Funds will be distributed under the guidance of the Advanced Maternity Fellowship Committee, which includes Michael C. Klein (Head, Division of Maternity and Newborn Care, UBC Department of Family Practice), Peter Newbery (Postgrad Director, UBC Department of Family Practice), Laurie Seymour (Nursing, BC Women's), Patty Keith (BC Reproductive Care Program), Gerry Marquette (Head, Department of Obstetrics, BC Women's), and Susan Harris (Head, Department of Family Practice, BC Women's).

Information and application forms can be found at www.womensfoundation.ca

We are grateful for the support of our donors and partners in the development of Women's Advanced Maternity Fellowship and look forward to this opportunity to improve maternity and newborn care in BC. We would hope that this enterprise might be a model for other provinces and communities.

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Windows keyboard shortcuts

Barrie McCombs, MD, CCFP, CCFP(EM)

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If you, or your staff, use the Windows operating system, you can save time and reduce repetitive strain injuries by using keyboard shortcuts for tasks that usually require several mouse-clicks. Many of these shortcuts also work in Windows-based programs, such as Microsoft Word or Excel.

Favourite shortcuts

The shortcuts that are the most useful are marked with one (very useful) or two asterisks (most useful). Why not give some of them a try when you next sit down at your computer?

Terminology

Clipboard

This is a temporary memory location where Windows saves information during Copy or Paste operations. Newer versions of Windows allow the user to have more than one clipboard open at the same time.

Click / Left click

Click and release the left mouse button.

Drag and drop

Click on a previously selected item (or any one of several items) and continue to hold the left mouse button down. The selected text, files or directories can then be dragged to a new location.

Right click

Click the right mouse button. This opens a pop-up menu containing shortcuts specific to the current application. See also: [Applications key](#).

Select

A single item is selected by left clicking on it. The "selected" item is highlighted and can then be deleted or moved to a new location. See also: [Ctrl-Click](#) & [Shift-Click](#)

Individual shortcut keys

Escape (Esc) *

Closes an open pop-up window or pull-down menu.

F1 key *

Opens the Help feature of the active window. See also: [Windows-F1](#).

F2 key

Renames a selected item (Desktop, My Computer & Windows Explorer).

F3 key

Finds a file or folder (Desktop, My Computer & Windows Explorer).

F4 key

Opens the Save In or Look In list (in Open & Save As dialog boxes).

F5 key

Refreshes the screen (in Open & Save As dialog boxes).

Print screen *

Saves a graphic image of the entire screen to the Windows Clipboard. The image can then be copied to the Windows Paint program (Start>Programs>Accessories>Paint) for printing or editing. See also: [Alt-Print Screen](#).

Ctrl (Control) and Alt(ernate) keys

Used in combination with other keys to create shortcuts.

Windows key

Located between the Ctrl and Alt keys. When pressed alone, it opens the Windows Start Menu. Useful when the Start button and task bar are hidden.

Applications key

Located between the right-hand Windows and Alt keys. Opens a program-specific shortcut menu. See also: [Right-Click](#).

Window key combinations

To activate these shortcuts, hold down the Windows key, press the other key(s) once, then release all keys.

Windows-C

Opens the Windows Control Panel. Used to change the computer's system settings.

Windows-E *

Opens Windows Explorer (or My Computer in Windows XP). Used to quickly view the file directory.

Windows-F

Opens Windows File Finder. Used to search for files by name, date or content.

Windows-M * *

Minimizes all open windows, but leaves them available on the task bar. Used to display the Windows Desktop when you have multiple windows open. See also: [Shift-Windows-M](#).

Windows-R

Displays the Run dialog box. Used to run a program or open a document or folder.

Windows-F1

Opens the Windows Help window, even when another application is open. See also: [F1](#).

Windows-Tab

Cycles through all items open on the task bar. When a desired window is highlighted, press Enter to make it the

active window. This is useful when multiple windows are open at the same time. See also: [Alt-Tab](#).

Windows-Break

Displays the System Properties window. Used to display basic information about the computer and operating system.

Control (Ctrl) key combinations

To activate these shortcuts, hold down the Control (Ctrl) key, press the other key(s) once, then release all keys.

Ctrl-A *

Selects all the text, files or directories in the current window, making them available for copying, cutting or pasting.

Ctrl-C * *

Copies previously selected items (text, files or directories) into the Clipboard. These items can then be pasted to a new location. The original items are unchanged.

Ctrl-F * *

Opens the Find window. This shortcut is useful for finding specific text within a document or Internet Web page.

Ctrl-O

Opens the Open File window. Used to open a new file or directory.

Ctrl-P

Opens the Print window. Used to select print options for the current document.

Ctrl-V * *

Copies (or "pastes") the contents of the Clipboard into a desired location. After a paste operation, the items still remain in the Clipboard, allowing you to make additional copies if desired.

Ctrl-X * *

Copies previously selected items (text, files or directories) into the Clipboard. Used to copy the items to a new location. The original items are deleted. See also: [Ctrl-C](#).

Ctrl-Y *

Reverses the effect of the last Undo operation. Identical to the Redo option in the Edit menu. See also: [Ctrl-Z](#).

Ctrl-Z *

Reverses the effect of the last task performed. Identical to the Undo option in the Edit menu. See also: [Ctrl-Y](#).

Ctrl-Click * *

Selects multiple files or directories by clicking on each one individually (Windows Explorer & My Computer). The same action can then be applied to all selected items. See also: [Select](#) & [Shift-Click](#).

Ctrl-Escape

Opens the Start menu. Used on older keyboards without a Windows key.

Ctrl-Alt-Delete

Opens the Task management window. Used to close a program that has "frozen." The computer displays options to shut down a selected task or the whole computer. Pressing the Ctrl-Alt-Delete combination a second time will restart the computer, which may result in a loss of unsaved data.

Ctrl-Drag

Copies selected items to a new location (Desktop, My Computer & Windows Explorer). The original items remain in the old location. See also: [Drag](#).

Ctrl-Shift-Drag

Creates a shortcut to a file or folder (Desktop, My Computer & Windows Explorer).

Alt key combinations

To activate these shortcuts, hold down the Alternate (Alt) key, press the other key(s) once, then release all keys.

Alt-F4

Closes the current active window.

Alt-Print Screen

Saves a graphic image of the current window to the Clipboard. See also: [Print Screen](#).

Alt-Tab

Opens a pop-up window to cycle through the items open on the task bar. Useful when the task bar is hidden, or to obtain a description of each item. See also [Windows-Tab](#).

Alt-Enter

Displays the properties of a selected item (Desktop, My Computer & Windows Explorer).

Shift key combinations

To activate these shortcuts, hold down the Shift key, press the other key(s) once, then release all keys.

Shift-Click * *

Used to select text, files, or folders. Left-click at the start of the selection, then Shift-left click at the end of the selection. All items between the two points will be highlighted, ready for moving or editing. See also: [Select & Ctrl-Click](#).

Shift-Windows-M * *

Restores all minimized windows. See also: [Windows-M](#).

Shift-Delete

Delete a selected file or directory immediately — without saving it in the Recycle bin (Desktop, My Computer & Windows Explorer).

Further Information

To learn more about shortcuts, use the Help feature in the Windows Start Menu or on the Menu Bar of other programs. Use the built-in search engine to search for "shortcuts" or the phrase "shortcut keys".

Competing interests: None declared.

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